

PHILIPPINE TUBERCULOSIS INITIATIVES FOR THE
PRIVATE SECTOR PROJECT (PHILIPPINE TIPS)

TOWARD AN ENABLING TB POLICY ENVIRONMENT

Part 1: Measuring the Burden of
Disease and Economic
Consequences of Tuberculosis in
the Philippines – Final Report

Part 2: A Policy Analysis of Private
Sector Participation in TB DOTS

Submitted to:

U.S. Agency for International Development

By:



Chemonics International Inc.
Contract No. 492-C-00-02-00031

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INTRODUCTION:

In 2000, the World Health Organization (WHO) estimated that there were 249,655 new cases of tuberculosis (TB) in the Philippines and of these our projections are 65,150 will die. Death from TB continues to rise — the main drivers are the high incidence of TB infection among Filipinos and the rapid population growth rate. In 2000, the World Health Organization reported that the Philippines had the seventh highest incidence in the world and the second highest in Asia (see Table 1). The Government of the Philippines, long concerned about these staggering figures has vigorously renewed its commitment to fight TB. One element of this effort is to obtain understanding of the national disease burden and economic cost borne by all Filipinos.

Table 1
TB Incidence* by Age and Gender in the Philippines and Other Countries

	Philippines**	Cambodia	China	Thailand	Viet Nam
Women					
0-14	23	2	2	0	0
15-24	82	84	33	24	38
25-34	190	282	33	40	78
35-44	284	504	31	36	120
45-54	145	818	31	62	202
55-64	355	1069	38	111	358
65+	810	831	29	160	484
Men					
0-14	50	2	2	0	0
15-24	326	93	42	33	67
25-34	549	331	51	100	211
35-44	1047	567	58	113	371
45-54	1582	824	73	156	540
55-64	1331	1502	104	224	687
65+	1004	1838	120	340	889
Overall	321	572	107	140	189

* estimated by smear-positive notification rate, per 100,000

source: Global TB Control. WHO Report 2002. WHO/CDS/TB/2002.295

**Source: 1997 NTPS

This report updates the current epidemiologic estimate of the burden of disease using DALYs Disability Adjusted Life Years and provides economic estimates of the costs of TB in the Philippines. We have applied sophisticated epidemiologic methodologies and econometric methods in our analysis. Our intention, however, is to make this document accessible to those working on the front lines confronted with the enormous challenges of policy making and allocating public resources. We therefore use boxes to describe our methodology and models (e.g., DALY calculations, Wage Differentiation, DOTS, Data Sources, and the TIPS Project) for those wishing more detail; we also have included tables used in our analysis (e.g., Population and Mortality data, and TB Prevalence Statistics in the Appendices.

Tuberculosis infects one third of the world population (33%) and kills 3 million people every year (JAMA August 1999). Over time, TB has likely caused more deaths than any other pathogen in the history of the human race. The epidemiology and clinical disease are complex but are important to understanding policy options (see Box 1).

Box 1. The Epidemiology and Clinical Course of Tuberculosis

Tuberculosis is caused by the bacillus *Mycobacterium tuberculosis*. It is transmitted from an infected person through aerosolized droplets. Droplets, formed from coughing and sneezing, are inhaled and create a primary infection that typically involves the lungs and nearby lymph nodes. Normally, these heal spontaneously forming granuloma visible on a chest XRay. During this primary stage, patients are rarely symptomatic. However, within the granuloma are dormant bacilli that can be reactivated at anytime. In a small portion of patients, when reactivation occurs, patients develop low-grade fever, increasingly productive cough occasionally mixed with blood, fatigue and weight loss.

Without treatment, the case fatality rate is very high (50-60%). Treatment, however, is highly effective and in 4-6 weeks most patients no longer have bacilli in their sputum and thus are not infectious. Because the bacilli can lie dormant, treatment is required for 6-9 months with multi-drug chemotherapy to affect a complete cure.

The clinical epidemiology of infection, is the basis for three policy implications for the Philippines. First, two-thirds of the Filipino population is infected and at risk for developing TB. Second, those who have the disease are often untreated and have a high concentration of bacillus in their sputum and thus are highly infectious. Third, treatment requires a coordinated and systematic approach to finance and deliver a long-term clinical intervention. Thus, the challenge facing Tuberculosis control can be summarized as follows:

1. Who has TB in the Philippines?
2. How many of these cases are diagnosed?
3. How many of the diagnosed cases are treated?
4. Where are they treated—in public or in private facilities?
5. How many of these receive effective therapy with DOTS?

I. SUMMARY OF FINDINGS

Each year our most conservative estimate is that over half a million (514,300 in 1997) Disability Adjusted Life Years (DALYs) are lost in the Philippines from TB. Premature mortality due to TB represents at least 9.0% of all potential years of life lost in the Philippines in Filipinos 10 years and older. Based on Sputum smear positive diagnoses, the gold standard measurement in public TB control programs, 212,704 (3.1 per thousand) Filipinos develop symptomatic TB (NTPS, 1997). It is likely that only 45% of all TB cases are diagnosed (JAMA. 1999). The National Tuberculosis Prevalence Survey done in 1997 found that only 38% of symptomatic TB patients (with bacteriologically confirmed disease) received professional treatment either from a public health center, private clinic, or hospital. In these same patients, half of those who did not seek treatment will die (JAMA. 1987). For those who did get care, 41% went to public health centers and paid between PhP 55 and PhP 162 NTPS and UHNP evaluation studies. Further, 9 out of 10 times these patients received DOTS chemotherapy. The remaining 59% went to other facilities, and paid PhP 756 to 1032 pesos a month. It is entirely unclear, however, what the quality of the diagnosis and continuity of treatment is for those who went to private sector facilities.

Box 2. If we could track 100 people with TB, what would happen to them?

How many people with TB are diagnosed and treated in the Philippines? This simple question is difficult to answer. Key pieces of data are missing and even when the data are present, they often only represent estimates or use older data and then rely heavily upon assumptions. Nevertheless, trying to understand what happens to patients with TB can be a very useful exercise because it makes the assumptions explicit, allows other analysts to change the model, and motivates interventions.

To illustrate, suppose we could follow the chain of events for 100 incident (new) cases of TB. For every 100 cases of TB in the Philippines, we believe that 45% are smear positive (SS+). Of the SS+, 60% of the cases are detected, 75% of these cases are detected in a DOTS program and 77% of these are registered where 89% of the time they receive effective treatment. This means almost 16 of the 45 smear positive cases are registered for treatment and 14 will complete treatment successfully and live disease-free. (This is equal to a 30% success rate for SS+ patients.) For the 40% of SS+ who are not detected (who by definition then are not treated) there is a case fatality rate of 70% and thus 13 of the 45 will die. Similarly, of the 45 SS+ who are detected but not registered, enrolled, or treated and assuming a CFR of (only) 30%, 5 more patients will die.

For the 55% of smear negative (SS-) cases, the estimates are more difficult. We conservatively assume that 40% of these patients are diagnosed by other means, such as CXR. Using the same figures as for SS+ case (the most optimistic scenario) where 75% are detected, 77% are registered and 89% receive effective therapy, 11 patients will live disease free. For the 60% who are not detected, assuming a CFR of 20%, 7 patients will die; and for the SS- cases that are detected, but not treated, 2 additional patients will die. These outcomes are summarized in the table below.

Phil TB Outcomes of 100 (New) Incident Cases

	Dead Alive	
Incident cases		
% SS+ 45%		
% SS- 55%		
SS+ Cases Successfully Treated (60% detection rate)	13.9	
SS+ Cases Detected Not Completing DOTS	4.7	8.8
SS+ Cases Not Detected or Treated	12.6	5.4
SS- Cases Successfully Treated (40% detection rate)	11.3	
SS- Cases Detected Not Completing DOTS	2.1	8.6
SS- Cases Not Detected or Treated	6.6	26.4
TOTAL	26.0	74.4

TOTALS do not add up to 100 due to rounding errors.

In total, just 25 of the 100 patients with TB will be diagnosed and treated. By contrast, 19 patients will die without ever being diagnosed and 7 more will be diagnosed without being treated. We will know surprisingly little about the remaining 45 patients. Some are diagnosed and not treated and some are partially treated. Of these, most will go on to be carriers while others will be partially treated and could eventually develop MDR. Overall, out of the 100 patients 26% died — out of 249,655 new cases that is equal to 65,160 new deaths.

The economic impact matches the oppressive human toll. TB robs an average worker of PhP 216 per day for women and PhP 451 per day for men (see Appendix 3).

The annual economic loss is staggering; the loss in wages alone is PhP 7.9 billion annually (Table 9). By contrast, the annual spending for TB drugs in the Philippines is a fraction of this - approximately PhP200 million per year. The cost of TB drugs per patient for a 6-month treatment is between PhP 1,000 and PhP 4,000 by far the greatest cost. Physician consultation fees would add between PhP 200 to PhP 700 and laboratory tests, such as sputum smear and culture, would cost between PhP 700 and PhP 1800 (Philippine Coalition Against TB). If these costs are aggregated, even under the most expensive scenario (PhP 6,500 per patient), all untreated patients (est. 76,000) could be treated for just PhP 500 million annually, a fraction of the PhP 7.9 billion lost in wages. Meanwhile, premature deaths due to tuberculosis are causing approximately PhP 27 billion a year in foregone income.

II. DATA USED IN THIS STUDY

The two main data sources for this study are the 1997 NTPS survey and the 1998 APIS survey. The NTPS contains information on smear positive and radiographic prevalence of TB, but the NTPS lacks socioeconomic data. Conversely, the APIS data, based on self-reported TB prevalence, is useful for describing the economic consequences of TB in the population, but does not provide sufficiently precise nationwide, gender-specific and age-specific incidence of TB needed for the DALY calculations. The 2001 UHNP survey, also used in this study, is not a nationally representative sample, but does provide valuable data on incidence, treatment and out-of-pocket treatment expense. These sources of data, their strength and weaknesses are listed in Box 3, below.

Box 3. Data Sources Evaluated or Used in This Study

1. 1997 National TB Prevalence Survey (NTPS) – Nationally representative survey of individuals and households. Cluster sampling of 21,960 respondents. Contains data on prevalence rates, treatment seeking decisions, limited set of demographic variables – age, gender. Limitation – no socio-economic variables. Used to calculate BoD, diagnosis and treatment seeking by facility.
2. 1991 DOH-PIDS Survey of Households – Household survey, stratified cluster sampling, 2,798 respondent households, limited to 4 regions - Metro Manila, regions 2, 7, 10, contains socio-economic variables, treatment seeking decisions, limited treatment costs data. Limitation – data is dated, TB prevalence is quite low so (TB) data is limited.
3. 1991 DOH-PIDS Survey of Hospital Users – Hospital inpatient exit poll, stratified sampling, 1004 respondents, limited to 4 regions - Metro Manila, regions 2, 7, 10, contains socio-economic variables, detailed hospital bill data. Limitation – data is dated, TB prevalence is quite low so (TB) data is limited.
4. 1991 DOH-PIDS Survey of Outpatient Clinic Users – Clinic user exit poll, stratified sampling, 1300+ respondents, limited to 4 regions - Metro Manila, regions 2, 7, 10, contains socio-economic variables, detailed clinic fees data. Limitation – data is dated, TB prevalence is quite low so (TB) data is limited.
5. 2001 Urban Health and Nutrition Program (UHNP) Evaluation Survey – Survey of households in UHNP and Non-UHNP covered areas, stratified sampling, 2205 respondents, limited to Metro Manila, Cebu City, Cagayan de Oro City, contains socio-economic variables, TB incidence, treatment seeking and limited cost data. Limitation – enriched sample, data accessible. Courtesy of Dr. Orville Solon. Used to estimate TB prevalence rates, TB treatment seeking by facility, and calculate out-of-pocket TB treatment cost by facility.
6. 1998 Annual Poverty Incidence Survey (APIS) – Household survey with roster of family members, 39,000+ households and 195,000+ individuals, representative at provincial level, key cities and municipalities, contains age, gender, reported incidence of illness by cause (including TB), wage, and occupation group. Limitation – Lists out medical facilities visited by individual but does not associate the indicated facilities visited with the reports of TB. Relies on self-report of TB, which varies for NTPS by age profile. Used to generate information on reported TB prevalence by age, gender, and other demographic classifications, and to calculate average loss in wages due to TB by gender and by age group.
7. 1997 Philippine Health Statistics (PHS) – contains morbidity and mortality data. Limitation – summary tables only.

III. BURDEN OF DISEASE METHODOLOGY AND ESTIMATES

We used the Burden of Disease (BoD) methodology to provide a combined measure of TB mortality and morbidity that could be compared to TB to a wide range of other diseases. A BoD assessment allows comparisons of the disease burden across nations and between diseases by using standardized measure called the Disability-Adjusted Life Year (DALY) (See Box 4). In the following paragraphs, we describe how we used data from the NTPS 1997 survey and applied the BoD methodology to the specific case of tuberculosis in the Philippines.

Box 4. Calculating DALYs lost from TB in the Philippines

The BoD methodology and the assumptions underlying it are described in detail in the results of the Global Burden of Disease (GBD) study (Murray & Lopez, 1996a, 1996b). The original study estimated the burden of 105 causes of disease (of which tuberculosis was one) in all regions of the world. The BoD methodology quantifies the burden of mortality (years of life lost) and of morbidity (years lived with disability).

Years of Life Lost (YLL). The mortality component of the DALY is the years of potential life lost due to premature mortality from a specific cause. Years of Life Lost (YLL) are calculated from annual mortality statistics for each disease. Remaining years of potential life at any age of death are calculated from a life table based on a life expectancy at birth of 82.5 years for females and 80.0 years for males (Murray & Lopez, 1996a, p. 17). For efficiency of calculation, counts of deaths are aggregated into 5-year groups of age at death for each gender, and the years of potential life lost are calculated based on the midpoint of the age range. YLLs are summed across age groups, and rates per 100,000 are calculated for each age/gender group and the population as a whole.

Years lived with Disability (YLD). The morbidity component of the DALY is the number of years of healthy life lost due to disability from a specific cause. Years Lived with Disability (YLD) due to a specific cause are calculated as the number of incident cases in a year, times the estimated duration of the disease, times the disability weight. The annual number of incident cases for a specific disease is derived from population estimates by age group and gender, plus available epidemiologic data on incidence rates. The GBD study developed disability weights for all major causes of disability using a Person Tradeoff Protocol (Murray & Lopez, 1996a). The weight for perfect health is 0, and that for death is 1. Weights for tuberculosis range from 0.264 to 0.294 for different age and gender groups. YLDs are calculated for each age and gender group and summed across the population. Rates are calculated per 100,000 as for YLLs.

Disability-Adjusted Life Years (DALY). DALYs are the sum of YLLs and YLDs. Since YLDs are calculated for broader age groups than for YLLs, data are presented by these broader groups.

The DALY calculation also incorporates 2 adjustment factors, discounting and age weighting (Murray & Lopez, 1996a). Discounting is the standard economic rate of time preference; a discount rate of 3% is used. Age weighting assigns a higher social value to lost years of life should be weighted more heavily in the early and middle adult years and less heavily in the earliest or latest years of life.

The overall formula for calculating DALYs is:

$$DALY_j = \sum YLL_j + YLD_j$$

$$\text{Where: } YLL_j \text{ or } YLD_j = \int_a^{a+L} D_j (Cxe^{-\beta x}) e^{-r(x-a)} dx$$

a = Age of death or onset

L = Remaining life expectancy

D_j = Disability weight (= 1 for death)

$Cxe^{-\beta x}$ = Age – weighting term

$e^{-r(x-a)}$ = Discounting term

Calculation of DALYs are performed using spreadsheets

(http://www3.who.int/whosis/menu.cfm?path=whosis,burden,burden,burden_estimates&language=english) containing solutions to this integral for standard GBD parameters (C , β , r) and disease-specific input parameters (mortality, incidence, duration, disability weight).

Population, mortality and incidence data are needed to calculate the burden of tuberculosis in the Philippines and comes from the following several sources.

- **Population.** Population data for the study's base year, 1997, by age and gender, were derived from the 1997 Philippine Health Statistics report.
- **Mortality.** The most recent complete mortality statistics for the Philippines is the 1997 Philippine Health Statistics. This report provides breakdowns of TB deaths by gender and by 5-year age groups. Deaths were aggregated for "TB Respiratory," TB Meningitis," and "TB Other Forms." Breakdowns of deaths and age groups over 70 were based on supplementary data obtained by Drs Tan and Perez. (See Appendix 1, Population and TB Mortality Data. The proportion of TB deaths urban vs. rural was based on respiratory TB deaths in each of the areas in the 1997 Philippine Health Statistics report.
 - Note, the 26,102 TB deaths reported for 1997 should be considered the lower bound estimate for actual TB deaths, as many TB deaths are thought to be either unreported or misreported as due to other causes.
- **TB Incidence.** TB incidence was estimated from several sources. A 1999 WHO global summary estimated that TB prevalence in the Philippines was 314/100,000 in 1997 (Dye et al, 1999). However, no breakdowns by age and gender are given. The 1997 Philippines National Tuberculosis Prevalence Survey (NTPS) estimated TB prevalence rates for persons over 10 years of age. Incidence was calculated from prevalence by assuming that 45% of cases are SS+ and using disease duration of 2.2 years and incidence was assumed to be zero for persons under age 10. The 1997 incidence was calculated as 321/100,000 nationwide. A detailed reconciliation of NTPS prevalence rates, and incidence rates calculated from them, was conducted to ensure that NTPS-based values are consistent with the 1999 WHO article and the 2002 WHO Global Tuberculosis Control Report. The other assumptions used in our modeling are listed in Box 5.

Box 5. Modeling Assumptions Made in This Analysis

- Duration of disease, 2.2 years (Dye et al, 1999)
- Incidence derived from smear positive cases was felt to be the most reliable estimate
- Percent TB cases that are sputum smear positive (SS+) is 45% (Dye et al, 1999)
- Children <10, rarely have bacteriologically positive TB (NTPS, 1997)
- The 81% public hospital and 19% private hospital ratio from the UHNP data set was used to breakdown the 12.1% hospital ratio reported by the NTPS summary tables.
- An annual increase of 1% in annual risk of infection results in 49/100,000 new smear positive cases.
- The ratio of TB/HIV in the Philippines is 0.4%. The incidence of HIV in the Philippines is low. (WHO Global TB Cortiol Report, 2002)
- The inflation rate from 1998 to 2002 is 22% and based on the National Consumer Price Index.
- Multi-drug resistance of MDR is 3.2% in the Philippines.
- Members of the workforce who were not employed and not studying were assumed to have zero wages.
- $\text{Prevalence} / 100,000 = \text{Incidence} / 100,000 \times \text{Average duration of disease (in years)}$

We calculated that the burden of tuberculosis is very large in the Philippines—514, 300 total DALYs alone in 1997. That is, over a *half-million years* of healthy life are lost due to illness and premature mortality from TB in the Philippines *annually*. As shown in Table 2, over two-thirds of the burden is due to premature mortality (YLL), because TB kills people in the prime of life. We also see that burden of TB is dramatically higher among men than among women.

Table 2. Burden of Tuberculosis in the Philippines, 1997

	YLL	YLD	DALY
Male	237,272	125,640	362,912
Female	<u>117,610</u>	<u>33,778</u>	<u>151,388</u>
Total	354,882	159,418	514,300

TB prevalence and mortality rise sharply with age. As shown in Table 2 DALY rates peak at over 3,600/100,000 in males aged 60-69, and at over 2,000/100,000 in females aged 70-79. Figures 1 and 2 show these age trends graphically. These DALY estimates are based on numbers of reported deaths due to TB. Because many deaths are unreported, and a large fraction of TB deaths are misreported as due to other causes, the actual number of DALYs due to TB is certainly larger. If the number of actual TB deaths were double the number reported (a plausible assumption given the high incidence and case fatality rate of TB in the Philippines), there would be over 52,000 TB deaths annually. The number of YLLs attributable to TB would rise to 709,764, and the total number of DALYs to 869,182.

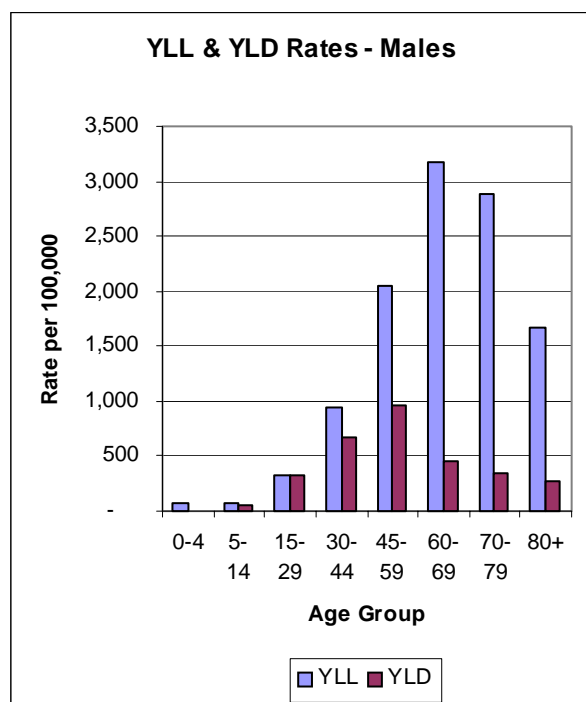


Figure 1

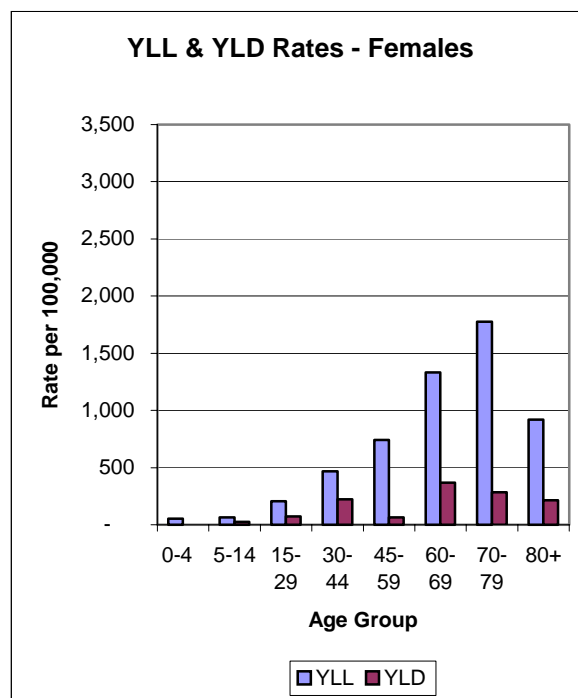


Figure 2

We performed a sensitivity analysis to assess the impact of better TB control on reducing mortality and morbidity. If TB control programs achieved the WHO target of detecting 70% of SS+ cases in DOTS programs, and maintained a successful treatment rate of 85%, the number of deaths due to TB would drop by 22.7%. This would reduce the number of YLLs due to TB by 80,655. A reduction in the average duration of disease from 2.2 years to 1.5 years would reduce the number of YLDs by 49,213, or 30.9%.

IV. ECONOMIC BURDEN METHODOLOGY AND ESTIMATE

The economic consequences of tuberculosis in the Philippines can be measured by looking at the following:

- Prevalence of TB across age and income quintiles
- A model assessing prevalence risk controlling for social and demographic factors
- An analysis of economic losses using wage differentials for those with TB

The impact of poverty. Tables 4, 5 and 6 report on TB prevalence across 5 income groups or quintiles. As expected, TB prevalence is much higher among the poor as shown in Table 4. The distribution between urban versus rural residents is shown in Table 5 and 6 and reveals that the highest prevalence is overwhelming amongst the elderly poor with a slightly higher prevalence amongst urban dwellers.

Table 4. Reported TB Prevalence by Age by Economic Class

Age Group	Economic Class - Household Income Quintile				
	Poorest	2 nd	3rd	4th	Highest
0-14	0.18	0.22	0.2	0.32	0.22
15-44	0.39	0.33	0.21	0.25	0.15
45-64	1.33	1.59	1.01	0.95	0.71
65 and above	3.3	2.38	2.55	2.24	1.09
All	0.66	0.52	0.39	0.44	0.3

*Source: 1998 APIS***Table 5. Reported TB Prevalence by Age by Economic Class (Rural)**

Age Group	Economic Class - Household Income Quintile				
	Poorest	2 nd	3rd	4th	Highest
0-14	0.16	0.17	0.08	0.25	0.12
5-44	0.35	0.33	0.25	0.12	0.19
45-64	1.23	1.26	1.11	0.69	0.53
65 and above	3.72	1.77	3.18	1.61	1.19
All	0.63	0.44	0.4	0.31	0.27

*Source: 1998 APIS***Table 6. Reported TB Prevalence by Age by Economic Class (Urban)**

Age Group	Economic Class - Household Income Quintile				
	Poorest	2 nd	3rd	4th	Highest
0-14	0.25	0.3	0.29	0.34	0.25
5-44	0.46	0.33	0.19	0.29	0.14
45-64	1.56	2.09	0.92	1.06	0.75
65 and above	2.52	3.16	2.13	2.5	1.08
All	0.71	0.65	0.39	0.5	0.31

Source: 1998 APIS

Modeling social and economic risk factors. Clinical tuberculosis is subject to numerous social and economic influences. To evaluate these effects, we asked what factors predict prevalence¹ of TB in the Filipino population. In Table 7 we show the results of our model. As we saw with the BoD analysis (when we used the NTPS data), prevalence rises with age and is much more common in men (26%) than women. The model also gives us a more rigorous quantification of the impact of poverty: specifically for every ten percent increase in income, TB prevalence declines by 2%. By region, the model shows that Southern Luzon and the NCR rank 1 and 2 in prevalence and not to surprisingly correspond to the most densely populated regions of the country²

¹ This model relies on APIS data, which collected self reported prevalence not smear positive or clinically diagnosed cases on TB.

² The model specifies rurality by region, which serves as a more precise measure of population density and overwhelms the effect of urban vs. rural.

Table 7. Marginal Effect of Socio-economic factors on TB Prevalence

Dependent = TB Incidence	Marginal Effect	% Change	z-statistic	p-value
Age	1.01	1.01	18.48	0.00
Male	0.26	25.95	7.65	0.00
Urban	0.03	2.64	0.44	0.66
Per Capita Household Income	-0.24	-0.24	-5.84	0.00
Ilocos	0.05	4.80	2.71	0.01
Cagayan Valley	0.05	5.09	3.50	0.00
Central Luzon	0.14	14.36	3.75	0.00
Southern Luzon	0.26	26.33	4.42	0.00
Bicol Region	0.11	10.82	5.43	0.00
Western Visayas	0.15	14.56	5.64	0.00
Central Visayas	0.06	5.78	2.50	0.01
Eastern Visayas	0.05	5.49	2.65	0.01
Western Mindanao	0.05	4.73	2.21	0.03
Northern Mindanao	0.04	4.41	2.15	0.03
Southern Mindanao	0.06	6.49	3.61	0.00
Central Mindanao	0.05	5.02	2.66	0.01
NCR	0.21	20.78	5.82	0.00
CAR	0.04	3.53	1.63	0.10
ARMM	0.02	1.73	0.56	0.57
Employed in Formal Wage Sector	-0.12	-12.18	-6.13	0.00

Source: 1998 APIS

The individual economic loss due to TB. We know the sick have a harder time finding work and, should they find work were less likely to be productive. The intuition here goes back to the DALY calculations—even if TB is not fatal (YLL) it affects a person’s ability to be economically productive (YLD). Logically, a person with TB will make less money than someone who does not and so we asked how much that would be? Modeling this effect is somewhat encumbered by 1) the fact that some people (with or without TB) might not choose to work; 2) some workers are unpaid; and 3) the TB patients are more likely to be in a study about TB patient. Appendix 4 shows that men with TB earn PhP 451 less per day compared to those who don’t have TB. Women earn PhP 216 fewer Pesos/day as shown in Appendix 6. Even after taking into account other factors, those without TB have wages that rise faster and see the wage benefits from college education faster than those that do.

Box 6. Calculation of Wage Differentials for Individuals with TB

The daily wage rate is computed as the ratio between total income during a quarter and the total number of full days worked during the same (third) quarter (APIS only collects data on this variables during the third quarter, July to September). In turn, the total number of full days worked is the sum of full days worked plus total number of hours worked during less than full days worked divided by 8.

It can be seen from Table 8 that there is a large difference in the daily wage rates of the TB afflicted relative to those not afflicted with TB across age groups.

Table 8. Daily Wage Rate by Age Group by TB Prevalence

Age Group	Not Afflicted w/ TB		Afflicted w/ TB	
	Female	Male	Female	Male
0-4				
5-14	70	73	0	0
15-29	223	210	65	35
30-44	315	293	72	88
45-59	350	349	29	74
60-69	273	298	17	27
70-79	167	310	1	4
>80	161	139	0	0
All	283	271	23	39

Source: 1998 APIS

*Daily wage rates are in 2002 Philippine Pesos

The point that TB has repercussions in terms of foregone earnings is better served through the generation of a point estimate of foregone wages. The study derives this point estimate of foregone wages through regression analysis of daily wage rates. There are several operational difficulties in carrying out this regression that must be overcome.

The first is that there are unobserved wages in the (APIS) sample. It is understandable some people choose not to work and this must be accounted for. To deal with this problem, the study employed a probit regression to account for the endogeneity of the decision to work i.e., the sub-sample not reporting wages may not necessarily earn zero wages. If the decision to work can be expressed through a regression equation then the problem is that of simultaneity. That is, to estimate wage determination properly, the decision to work and wage determination would have to be estimated jointly. The study addresses this issue through the use of Heckman's two-step sample selection estimator.

The second is the presence of reported zero wages. The study assumes that these zero wages are associated with unpaid workers, for example those who work for the family. To deal with the second issue on reported zero wages, an unpaid family worker dummy variable is included as an instrument in the right-hand side of the daily wage rate regression. The presence of the endogenous right hand side TB sick variable in the daily wage rate regression can be treated as a selectivity problem similar in character to the unobserved wage problem. To deal with this estimation issue, a treatment effects model is used to account for the endogeneity of the TB sick variable in the daily wage rate regression.

The third and last consideration is that the reported TB prevalence variable by construction is endogenous so ordinary least squares estimation would yield biased estimates. Unobserved factors that affect TB prevalence could also influence the earning capacity.

Table 9. Wage Loss Due to TB in 1997

Age Group	Deaths	Loss Due to Deaths	Incident Cases	Loss Due to Morbidity	Total Annual Loss
0-4	160	0	0	0	0
5-14	317	13,762	9,848	160,542	174,304
15-29	1,615	96,365,971	46,830	874,460,651	970,826,622
30-44	3,829	450,869,829	77,376	2,572,306,223	3,023,176,052
45-59	6,598	720,194,388	61,855	2,150,601,807	2,870,796,195
60-69	6,155	417,383,140	22,940	362,117,647	779,500,787
70-79	5,098	170,839,003	10,356	85,042,026	255,881,029
80+	2,330	25,371,541	3,831	9,769,722	35,141,263
Total	26,102	1,881,037,634	233,036	6,054,458,617	7,935,557,729

Source 1998 APIS (in 2002 prices)

Using the calculated daily loss in wages, we apply this to the (age and gender stratified) DALY estimations to estimate annualized income loss. The estimated total wages lost shown in Table 11 in 1997 was almost 8 billion pesos (see Appendix 5 for separate tables for men and women).

Foregone income stream due to TB. Using the YLL calculations and the projected income stream, we estimate that the country loses around PhP26.4 billion due to premature deaths from TB. This estimate does not include direct and indirect costs of treatment, productivity losses, and income losses due to disability from TB.

Table 10. Foregone Income Stream due to Premature TB deaths

	Foregone Income (in thousands)
MALES	Ph P 18,716,121
FEMALES	Ph P 7,687,180
TOTALS	Ph P 26,427,303

V. THE PUBLIC AND PRIVATE SECTOR RESPONSE TO TB

The Department of Health has embarked on a National Health Sector Reform Agenda that places TB control on top of its agenda through the following objectives:

- Maintain the quality of the DOTS implementation program
- Secure sufficient human resources for program implementation
- Strengthen a weak quality control system, including the laboratory network
- Sustain political and financial commitment as the GOP has decentralized authority for budget

- allocations to Local Government Units (LGUs), cities and municipalities
- Strengthen the national drug procurement and distribution system, and
- Bring private sector providers into compliance with the national DOTS strategy.

The National TB Program was integrated with the Infectious Disease Office, under the National Center for Disease Prevention and Control (NCDPC). Overall projected spending from the national and international sources is expected to be around PhP 250 million. In addition, USAID began to implement in November last year the Tuberculosis Initiative Project for Private Sector, a 3-year \$8.9 million intended to strengthen private sector participation in TB control (*See Box 7*).

Box 7. The NICC, the National TB Policy Assessment Project and the TIPS Project

Philippine Tuberculosis Initiative to Strengthen Private Sector Participation (TIPS)

Overview and Rationale for Strengthening TB Services through Private Providers

The delivery system and financing of health care in the Philippines is heavily dominated by the private sector. In previously published National Health Account 60 percent of total health expenditures are estimated to come from the private sector and about half of these costs were borne by the patients themselves. Based on the number of accredited hospitals by the DOH, private sector facilities comprise about 65% of the total number in the country.

Philippine TIPS Project Tasks and Objectives

The Philippine TIPS Project aims to help reduce the prevalence of tuberculosis in the Philippines through a more active participation of the private sector in the delivery of the Directly Observed Treatment Services to TB patients.

The project intends to enable the for-profit private sector, to collaborate with the public sector and, successfully treat TB patients. The project will develop policy initiatives to create private sector incentives to participate in DOTS treatment, develop site-specific private sector service models in at least 25 strategic urban cities and large municipalities nationwide, identify strategies to improve and expand DOTS implementation in the private sector, develop, improve teaching and training in medical professional schools, and develop national health care financing schemes that strengthen private sector delivery of TB control and cure service developed and implemented.

At the individual level, the response to the TB pandemic is also suboptimal. Most Filipinos recognize that TB is treatable (96%), but only half recognize that medicine needs to be taken daily. 13.29% of Filipinos know or live with a person with TB and most likely know how contagious the disease is since 84.67% of all persons with TB had an infected HH member and 32.76% had an infected neighbor (UHNP 2001). The lack of acceptable treatment seeking behavior by individuals is especially alarming. While 99.9% of all people said they would seek appropriate care (UHNP data), only 39% (NTPS data) of those with TB actually went to either a public or private facility (Table 8) for suitable antibiotic therapy.

Table 11. Observed TB Treatment Provider of Choice

Action taken by TB symptomatics w/ bacteriologically confirmed TB	Percent
None	34.50
Self-medication	22.40
Family Member	1.70
Traditional Healer	3.40
Health Center	15.50
Public Hospital	9.81
Private MD	10.40
Private Hospital	2.29
Total	100.00

Source: 1997 NTPS

*Hospital provided treatment is broken by public-private using 2001 UHNP

The decision to seek care from public or private hospitals and clinics is an important policy variable. Two surveys suggest that private care is the choice of about 1/3 of patients (31.5% in the UHNP study and 38.3% in the NTPS study, which used bacteriologically confirmed diagnoses (see Table 10). The majority of the time (59%) costs, either monetary or temporal were the primary reason for choosing a provider. Interestingly, while the out of pocket cost of care was dramatically lower in Health Centers only 44% of patients went there for care. Otherwise, as shown in Table 11, costs in the private sector were competitive with the public sector. These findings suggest that if a person did not go to a health center, they split their choices between public and private providers.

Table 12. Distribution of TB Treatment Out-of-Pocket Cost by Providers

Provider	Cost per Month	Cost per 6 Months	NTPS Use Rate
Health Center in our Area	162	969	38.07
Health Center in Other Areas	55	327	2.72
Government Hospital	869	5217	25.80
Private Clinic	756	4534	27.37
Private Hospital	1032	6192	6.04
All Providers	556	3339	

Source: 2001 UHNP Evaluation Survey

*Treatment costs are in 2002 prices

At the provider level, DOTS therapy is the standard of treatment (see Box 8).

Box 8. Directly Observed Treatment (DOTS)

Developed in 1993 by WHO's Global Tuberculosis Programme, DOTS (Directly Observed Treatment, Short-course) is believed to be the most effective strategy for controlling the TB epidemic. DOTS has five key components: (1) Government commitment to sustained TB control activities (2) Case detection by sputum smear microscopy among symptomatic patients self-reporting to health services (3) Standardized treatment regimen of six to eight months for at least all confirmed sputum smear positive cases, with directly observed treatment (DOT) for at least the initial two months (4) A regular, uninterrupted supply of all essential anti-TB drugs (5) A standardized recording and reporting system that allows assessment of treatment results for each patient and of the TB control programme overall. Standardized treatment regimens depend on whether the patient is classified as a new case or as a previously treated case; the most common drugs used are isoniazid, rifampicin, pyrazinamide, streptomycin, ethambutol and thioacetazone. With DOTS, the patient, health care workers, public health officials, governments, and communities share the responsibility to effective treatment and control of TB.

Source: What is DOTS? WHO Report, 1999. WHO/CDS/CPC/TB/99.270

The DOH Instituted DOTS in 1996 and by 2002, 89% of all public clinics have implemented this regimen (compared to 17% in 1998). As a result, cure rates have reached 87% in this group. By contrast, although one-third of all patients receive care in the private sector, it is unknown what % receives DOTS or is adequately treated. By subtraction, we estimate that this percentage is low.

VI. ADDITIONAL CONCLUSIONS

In closing, we draw the following conclusions.

1. Key pieces of data are still needed to identify policy options:
 - BoD by income and region using smear positive prevalence data
 - Cost (production) estimates by facility and provider type and facility
 - Indirect cost estimates are needed and underscore that our economic analysis is biased downward.
 - Health manpower training requirements if services are upgraded or expanded
 - The expansion of DOTS since 1998 will alter the duration of illness and CFR affecting future assessments of the BoD and related economic consequences because these estimates herein are very sensitive to TB surveillance data (SS+ and prevalence) a new NTPS survey will be needed soon.
2. The staggering burden of disease and enormous economic consequences may well overwhelm the benefits of targeting any group beyond the poor or the elderly. Thus, clinicians should maintain a high degree of clinical suspicion for any patient with persistent cough and fever, especially in elderly men and demand side interventions, such as subsidized or capitated insurance coverage should be targeted towards the working poor.
3. The burden of disease from tuberculosis disproportionately affects the selected populations of the poor, elderly and male.
4. Supply side interventions will hinge on better knowledge of the private sector
5. Supply side interventions, however, need to focus on better diagnosis. This may hinge on improving the diagnostic abilities and resources of private providers. Little is known about the quality of private sector treatment. This has three implications:

- Survey data on the quality of private clinical practice is a very high priority.
- In the absence of data on the quality of care, strategies that increase the incentives of private providers to diagnose and refer patients to public facilities are warranted. The private provision of TB care (with available information) does not appear justifiable.

Appendix 1

Mortality: TB, All Forms By Age (Philippines 1997 & 1998)

Age Group	1997 Number	1998 Number
All Ages	26,151	28,041
Under 1	33	71
1-4	127	156
5-9	129	167
10-14	188	177
15-19	314	316
20-24	504	536
25-29	797	837
30-34	981	985
35-39	1307	1324
40-44	1541	1657
45-49	1951	2110
50-54	2109	2340
55-59	2538	2812
60-64	3095	3284
65-69	3060	3336
70-74	2716	2811
75-79	2382	2588
80-84	1369	1410
85 & Over	961	1082
Not Stated	49	42

*Source: National Statistics Office
National Epidemiology Center, DOH*

Appendix 2

Binary Logit Regression of Reported TB Prevalence

Dependent = TB Incidence	Coefficient	Std. Error	z-stat	p-value
Age	0.04	0.002	18.53	0.00
Male	0.51	0.07	7.65	0.00
Urban	0.04	0.10	0.44	0.66
Per Capita Household Income	-0.000020	0.000003	-5.85	0.00
Ilocos	1.01	0.37	2.71	0.01
Cagayan Valley	1.38	0.39	3.50	0.00
Central Luzon	1.47	0.39	3.75	0.00
Southern Luzon	1.73	0.39	4.42	0.00
Bicol Region	1.97	0.36	5.44	0.00
Western Visayas	2.00	0.35	5.64	0.00
Central Visayas	1.00	0.40	2.50	0.01
Eastern Visayas	1.00	0.38	2.65	0.01
Western Mindanao	1.11	0.50	2.21	0.03
Northern Mindanao	0.86	0.40	2.15	0.03
Southern Mindanao	1.29	0.36	3.61	0.00
Central Mindanao	1.14	0.43	2.66	0.01
NCR	2.03	0.35	5.82	0.00
CAR	0.82	0.50	1.63	0.10
ARMM	0.33	0.58	0.56	0.57
Employed in Formal Wage Sector	-0.73	0.12	-6.13	0.00
Intercept	-8.19	0.36	-22.98	0.00
Pseudo R2	0.085			

Marginal Effects of Logit Regression of TB Prevalence (Elasticities)

Dependent = TB Incidence	Marginal Effect	% Change	Std. Err.	z-statistic	p-value
Age	1.01	1.01	0.05	18.48	0.00
Male	0.26	25.95	0.03	7.65	0.00
Urban	0.03	2.64	0.06	0.44	0.66
Per Capita Household Income	-0.24	-0.24	0.04	-5.84	0.00
Ilocos	0.05	4.80	0.02	2.71	0.01
Cagayan Valley	0.05	5.09	0.01	3.50	0.00
Central Luzon	0.14	14.36	0.04	3.75	0.00
Southern Luzon	0.26	26.33	0.06	4.42	0.00
Bicol Region	0.11	10.82	0.02	5.43	0.00
Western Visayas	0.15	14.56	0.03	5.64	0.00
Central Visayas	0.06	5.78	0.02	2.50	0.01
Eastern Visayas	0.05	5.49	0.02	2.65	0.01
Western Mindanao	0.05	4.73	0.02	2.21	0.03
Northern Mindanao	0.04	4.41	0.02	2.15	0.03
Southern Mindanao	0.06	6.49	0.02	3.61	0.00
Central Mindanao	0.05	5.02	0.02	2.66	0.01
NCR	0.21	20.78	0.04	5.82	0.00
CAR	0.04	3.53	0.02	1.63	0.10
ARMM	0.02	1.73	0.03	0.56	0.57
Employed in Formal Wage Sector	-0.12	-12.18	0.02	-6.13	0.00

Source: APIS, 1998

Appendix 3

Treatment Effects Regression of TB Impact on Daily Wage Rate (Male)

Dependent = Daily Wage Rate	Estimates	Std. Err.	z-statistics	P-Value
Age	10.66	2.63	4.05	0.00
Age Squared	-0.11	0.03	-3.42	0.00
Elementary Graduate	-2.58	10.63	-0.24	0.81
High School Graduate	8.37	9.56	0.87	0.38
Vocational School Graduate	28.92	12.59	2.30	0.02
College Graduate	161.12	14.04	11.48	0.00
Urban	14.31	8.24	1.74	0.08
Formal Wage Sector	104.43	9.72	10.74	0.00
Ilocos	25.49	26.55	0.96	0.34
Cagayan Valley	35.85	27.08	1.32	0.19
Central Luzon	38.38	23.37	1.64	0.10
Southern Luzon	43.26	22.43	1.93	0.05
Bicol Region	25.58	25.17	1.02	0.31
Western Visayas	6.89	25.21	0.27	0.79
Central Visayas	20.09	25.26	0.80	0.43
Eastern Visayas	34.72	27.09	1.28	0.20
Western Mindanao	1.72	27.43	0.06	0.95
Northern Mindanao	18.88	26.40	0.72	0.47
Southern Mindanao	18.90	25.94	0.73	0.47
Central Mindanao	9.03	26.99	0.33	0.74
NCR	152.94	23.80	6.43	0.00
CAR	40.22	27.40	1.47	0.14
ARMM	-34.55	26.44	-1.31	0.19
Agriculture	-25.51	41.21	-0.62	0.54
Mining	39.94	57.62	0.69	0.49
Manufacturing	20.07	42.06	0.48	0.63
Power and Water	163.60	53.95	3.03	0.00
Construction	16.80	41.88	0.40	0.69
Wholesale and Retail Trade	-31.79	42.35	-0.75	0.45
Transportation and Telecommunication	7.30	41.93	0.17	0.86
Banking and Finance	96.92	22.61	4.29	0.00
Public Admn. And Defense	120.44	42.88	2.81	0.01
Sanitary Services	-39.27	131.13	-0.30	0.77
Public Education Services	132.13	50.72	2.60	0.01
Private Education Services	12.37	58.82	0.21	0.83
Public Health Services	98.36	73.76	1.33	0.18
Private Health Services	-7.08	64.42	-0.11	0.91
Other Personal Services	41.05	42.26	0.97	0.33
Inverse Mills Ratio (Working)	40.47	22.10	1.83	0.07
TB Afflicted	-370.08	136.73	-2.71	0.01
Intercept	-233.41	78.87	-2.96	0.00
Treatment = TB Sick				

Age	0.02	0.00	15.97	0.00
Urban	0.08	0.05	1.50	0.13
Per Capita HH Income	-0.000009	0.00	-3.68	0.00
Ilocos	0.17	0.19	0.93	0.35
Cagayan Valley	0.28	0.18	1.49	0.14
Central Luzon	0.13	0.17	0.76	0.45
Southern Luzon	0.21	0.17	1.27	0.20
Bicol Region	0.16	0.17	0.92	0.36
Western Visayas	0.70	0.17	4.14	0.00
Central Visayas	-0.26	0.19	-1.34	0.18
Eastern Visayas	-0.04	0.20	-0.19	0.85
Western Mindanao	0.00	0.20	-0.02	0.98
Northern Mindanao	0.01	0.20	0.07	0.94
Southern Mindanao	0.21	0.19	1.11	0.27
Central Mindanao	0.06	0.19	0.29	0.77
NCR	0.54	0.17	3.10	0.00
CAR	-0.19	0.20	-0.95	0.34
ARMM	-0.56	0.21	-2.66	0.01
Formal Wage Sector	-0.82	0.05	-15.49	0.00
Inverse Mills Ratio (Working)	0.23	0.05	4.53	0.00
Intercept	-3.17	0.17	-18.33	0.00
Hazard				
Inverse Mills Ratio (TB Sick)	139.76	57.17	2.44	0.01
Rho	0.22			
Sigma	624.37			

Source: APIS, 1998

Marginal Effects Associated with Factors of Daily Wage Rate (Male)

	Worker w TB	Worker w/o TB
Age	14.46	17.37
Age Squared	-0.19	-0.19
Elementary Graduate	5.06	5.06
High School Graduate	17.01	17.01
Vocational School Graduate	32.33	32.33
College Graduate	188.17	188.17
Urban	21.53	30.86
TB Sick (= -370.08)		
Per Capita HH Income	0.00111	0.00004
Formal Wage Sector	209.19	110.02
Ilocos	3.23	24.55
Cagayan Valley	0.80	34.20
Central Luzon	21.41	37.71
Southern Luzon	16.43	42.15
Bicol Region	5.12	24.74
Western Visayas	-81.86	0.46
Central Visayas	52.97	20.98
Eastern Visayas	39.41	34.88
Western Mindanao	2.25	1.74
Northern Mindanao	17.12	18.82
Southern Mindanao	-8.04	17.72
Central Mindanao	1.72	8.76
NCR	84.28	148.92
CAR	65.23	40.93
ARMM	38.43	-33.08
Agriculture	-25.51	-25.51
Mining	39.94	39.94
Manufacturing	20.07	20.07
Power and Water	163.60	163.60
Construction	16.80	16.80
Wholesale and Retail Trade	-31.79	-31.79
Transportation and Telecommunication	7.30	7.30
Banking and Finance	96.92	96.92
Public Admn. And Defense	120.44	120.44
Sanitary Services	-39.27	-39.27
Public Education Services	132.13	132.13
Private Education Services	12.37	12.37
Public Health Services	98.36	98.36
Private Health Services	-7.08	-7.08
Other Personal Services	41.05	41.05
Inverse Mills Ratio (Working)	11.11	39.44

Source: 1998 APIS (daily wage rates are in 1998 pesos, the average loss to TB of Php 370 multiplied by 1.22% yields Php 451)

Appendix 4

Treatment Effects Regression of TB Impact on Daily Wage Rate (Female)

Dependent = Daily Wage Rate	Estimates	Std. Err.	z-statistics	P-Value
Age	13.83	1.74	7.93	0.00
Age Squared	-0.15	0.02	-7.41	0.00
Elementary Graduate	-12.11	5.48	-2.21	0.03
High School Graduate	11.73	5.25	2.23	0.03
Vocational School Graduate	15.42	6.13	2.51	0.01
College Graduate	139.27	7.76	17.96	0.00
Urban	27.26	3.79	7.19	0.00
Formal Wage Sector	97.47	4.39	22.20	0.00
Ilocos	43.60	12.50	3.49	0.00
Cagayan Valley	47.44	12.65	3.75	0.00
Central Luzon	32.32	11.22	2.88	0.00
Southern Luzon	40.07	10.73	3.73	0.00
Bicol Region	21.02	11.77	1.79	0.07
Western Visayas	22.42	11.96	1.87	0.06
Central Visayas	20.23	11.68	1.73	0.08
Eastern Visayas	10.69	12.79	0.84	0.40
Western Mindanao	6.30	13.46	0.47	0.64
Northern Mindanao	27.91	12.45	2.24	0.03
Southern Mindanao	19.52	12.40	1.57	0.12
Central Mindanao	27.69	12.74	2.17	0.03
NCR	106.04	11.44	9.27	0.00
CAR	36.90	12.57	2.94	0.00
ARMM	-5.20	13.63	-0.38	0.70
Agriculture	-20.88	14.70	-1.42	0.16
Mining	-19.30	68.05	-0.28	0.78
Manufacturing	23.50	14.71	1.60	0.11
Power and Water	199.02	29.73	6.69	0.00
Construction	46.25	27.93	1.66	0.10
Wholesale and Retail Trade	-20.54	14.55	-1.41	0.16
Transportation and Telecommunication	74.93	20.20	3.71	0.00
Banking and Finance	61.64	16.37	3.76	0.00
Public Admn. And Defense	136.39	15.52	8.79	0.00
Sanitary Services	42.55	64.90	0.66	0.51
Public Education Services	218.90	15.70	13.94	0.00
Private Education Services	65.34	17.72	3.69	0.00
Public Health Services	157.16	19.19	8.19	0.00
Private Health Services	-12.08	14.08	-0.86	0.39
Other Personal Services	28.93	14.66	1.97	0.05
Inverse Mills Ratio (Working)	96.73	16.64	5.81	0.00
TB Afflicted	-177.27	48.52	-3.65	0.00
Intercept	-412.32	55.79	-7.39	0.00

Treatment = TB Sick				
Age	0.03	0.00	13.84	0.00
Urban	0.06	0.06	0.89	0.37
Per Capita HH Income	-0.000007	0.00	-2.75	0.01
Ilocos	5.31	0.26	20.12	0.00
Cagayan Valley	5.15			
Central Luzon	5.65	0.22	26.24	0.00
Southern Luzon	5.61	0.20	27.43	0.00
Bicol Region	5.59	0.21	26.36	0.00
Western Visayas	6.13	0.21	29.30	0.00
Central Visayas	5.35	0.22	23.81	0.00
Eastern Visayas	5.51	0.24	22.96	0.00
Western Mindanao	5.62	0.25	22.15	0.00
Northern Mindanao	5.42	0.25	21.57	0.00
Southern Mindanao	5.53	0.25	22.33	0.00
Central Mindanao	5.68	0.23	24.27	0.00
NCR	6.21	0.22	28.74	0.00
CAR	5.22	0.26	20.29	0.00
ARMM	5.38	0.26	20.44	0.00
Formal Wage Sector	-0.83	0.08	-10.37	0.00
Inverse Mills Ratio (Working)	0.29	0.08	3.74	0.00
Intercept	-9.08	0.23	-39.21	0.00
Hazard				
Inverse Mills Ratio (TB Sick)	66.06	21.13	3.13	0.00
Rho	0.31			
Sigma	210.63			

Source: APIS, 1998

Marginal Effects Associated with Factors of Daily Wage Rate (Female)

	Worker w TB	Worker w/o TB
Age	15.30	16.96
Age Squared	-0.19	-0.19
Elementary Graduate	-14.49	-14.49
High School Graduate	17.27	17.27
Vocational School Graduate	21.04	21.04
College Graduate	178.31	178.31
Urban	29.85	33.22
TB Sick (= -177.27)		
Per Capita HH Income	0.00045	0.00001
Formal Wage Sector	148.10	99.14
Ilocos	-173.79	-128.71
Cagayan Valley	-168.00	-116.67
Central Luzon	-207.39	-138.70
Southern Luzon	-225.13	-101.23
Bicol Region	-205.31	-160.28
Western Visayas	-206.66	-189.80
Central Visayas	-205.31	-146.06
Eastern Visayas	-206.18	-175.29
Western Mindanao	-208.28	-188.82
Northern Mindanao	-190.43	-150.60
Southern Mindanao	-200.05	-164.97
Central Mindanao	-190.43	-167.47
NCR	-138.26	-96.26
CAR	-179.64	-130.66
ARMM	-218.65	-185.87
Agriculture	-20.88	-20.88
Mining	-19.30	-19.30
Manufacturing	23.50	23.50
Power and Water	199.02	199.02
Construction	46.25	46.25
Wholesale and Retail Trade	-20.54	-20.54
Transportation and Telecommunication	74.93	74.93
Banking and Finance	61.64	61.64
Public Admn. And Defense	136.39	136.39
Sanitary Services	42.55	42.55
Public Education Services	218.90	218.90
Private Education Services	65.34	65.34
Public Health Services	157.16	157.16
Private Health Services	-12.08	-12.08
Other Personal Services	28.93	28.93
Inverse Mills Ratio (Working)	78.85	96.30

Source: 1998 APIS (daily wage rates are in 1998 pesos, the average loss to TB of PhP 177 multiplied by 1.22% yields PhP 216))

Appendix 5

Foregone Wages Due to TB Mortality

Males

Age Group	Population	Deaths	YLLs	YLL per 100K	Average Annual Wage	Foregone Income	Foregone Income per 100k
<1	1,007,719	27	818	81	55,702	45,575,395	4,522,629
1-4	3,890,959	63	1,896	49	58,797	111,496,387	2,865,525
5-9	4,602,469	69	2,043	44	62,255	127,210,878	2,763,970
10-14	4,192,269	105	3,038	72	65,284	198,303,957	4,730,230
15-19	3,774,185	189	5,330	141	68,347	364,314,880	9,652,809
20-24	3,359,916	303	8,323	248	70,888	589,981,898	17,559,424
25-29	2,963,907	499	13,242	447	72,647	961,953,837	32,455,601
30-34	2,585,627	648	16,478	637	72,729	1,198,404,074	46,348,683
35-39	2,220,868	851	20,578	927	73,095	1,504,131,203	67,727,177
40-44	1,858,943	1,091	24,769	1,332	72,689	1,800,463,963	96,854,178
45-49	1,523,783	1,434	30,148	1,979	71,453	2,154,185,015	141,370,852
50-54	1,206,329	1,559	29,883	2,477	69,131	2,065,840,486	171,250,172
55-59	933,795	1,909	32,604	3,492	65,406	2,132,464,124	228,365,340
60-64	706,266	2,228	32,902	4,659	62,014	2,040,399,386	288,899,563
65-69	516,101	2,109	26,005	5,039	57,378	1,492,129,119	289,115,719
70-74	354,103	2,245	22,358	6,314	56,832	1,270,636,033	358,832,326
75-79	202,345	1,283	9,955	4,920	48,234	480,168,655	237,302,464
80-84	101,172	641	3,721	3,678	36,311	135,113,491	133,547,928
85+	50,586	321	1,175	2,324	36,878	43,349,216	85,693,855
Total						18,716,121,998	2,219,858,447

Females

Age Group	Population	Deaths	YLLs	YLL per 100K	Average Annual Wage	Foregone Income	Foregone Income per 100k
<1	943,495	6	183	19	52,897	9,687,178	1,026,733
1-4	3,677,881	64	1,941	53	55,835	108,401,194	2,947,382
5-9	4,358,013	60	1,793	41	59,120	105,995,508	2,432,198
10-14	4,052,530	83	2,432	60	60,926	148,188,390	3,656,688
15-19	3,708,794	125	3,577	96	63,847	228,354,817	6,157,118
20-24	3,339,230	201	5,610	168	66,258	371,699,322	11,131,288
25-29	2,960,981	298	8,067	272	67,061	541,010,770	18,271,335
30-34	2,571,687	333	8,674	337	66,512	576,919,503	22,433,504
35-39	2,196,902	456	11,366	517	65,146	740,470,502	33,705,213
40-44	1,831,524	450	10,613	579	63,566	674,630,205	36,834,363
45-49	1,503,256	517	11,412	759	61,362	700,245,001	46,581,886
50-54	1,206,643	550	11,232	931	58,301	654,847,020	54,270,154
55-59	954,603	629	11,612	1,216	52,484	609,421,711	63,840,331
60-64	745,104	867	14,198	1,906	46,390	658,670,685	88,399,832
65-69	573,293	951	13,338	2,327	38,324	511,174,196	89,164,563
70-74	437,256	1,469	16,926	3,871	38,271	647,785,585	148,147,901
75-79	249,861	839	7,587	3,036	38,375	291,147,309	116,523,911
80-84	124,930	420	2,830	2,265	32,719	92,595,122	74,117,434
85+	62,465	210	837	1,341	19,032	15,936,941	25,513,335
Total						7,687,180,959	845,155,170

Appendix 6

Wage Lost Due to TB in 1997 (Men)

Age Group	Days Worked per year	Wage Lost per day	Deaths	Loss Due to Deaths	Incident Cases	Disabling Weight	Loss Due to Morbidity	Total Annual Loss
0-4	0	0	90	0		0.294	0	0
5-14	9	9	174	13,762	6,904	0.294	160,542	174,304
15-29	147	549	991	79,911,146	38,282	0.264	814,952,410	894,863,555
30-44	265	576	2,590	395,666,969	58,183	0.264	2,346,551,389	2,742,218,358
45-59	253	524	4,902	650,594,342	57,923	0.274	2,106,389,034	2,756,983,376
60-69	192	447	4,337	371,138,975	12,273	0.274	287,771,936	658,910,911
70-79	128	376	3,082	147,893,061	5,259	0.274	69,146,292	217,039,353
80+	51	318	1,408	22,623,677	1,852	0.274	8,153,650	30,777,327
Total			17,574	1,667,841,931	180,676		5,633,125,252	7,300,967,183

Wage Lost Due to TB in 1997 (Women)

Age Group	Days Worked per year	Wage Lost per day	Deaths	Loss Due to Deaths	Incident Cases	Disabling Weight	Loss Due to Morbidity	Total Annual Loss
0-4	0	0	70	0		0.294	0	0
5-14	4	0	143	0	2,944	0.294	0	0
15-29	80	329	624	16,454,825	8,548	0.264	59,508,241	75,963,066
30-44	149	299	1,239	55,202,859	19,193	0.264	225,754,834	280,957,693
45-59	157	262	1,696	69,600,046	3,932	0.274	44,212,773	113,812,819
60-69	114	223	1,818	46,244,165	10,667	0.274	74,345,711	120,589,876
70-79	62	184	2,016	22,945,943	5,097	0.274	15,895,733	38,841,676
80+	21	140	922	2,747,864	1,979	0.274	1,616,072	4,363,936
Total	588		8,528	213,195,703	52,360	2.212	421,333,365	634,590,545

SOURCE: 1998 APIS

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PHILIPPINE TUBERCULOSIS INITIATIVES FOR THE
PRIVATE SECTOR PROJECT (PHILIPPINE TIPS)

TOWARD AN ENABLING TB POLICY ENVIRONMENT

Part 2: A Policy Analysis of Private Sector Participation in TB DOTS

Submitted to:

U.S. Agency for International Development

By:



Chemonics International Inc.
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EXECUTIVE SUMMARY

Despite advances in medicine and the government's relentless campaign to control TB in the Philippines, the TB situation remains a policy concern. It is reported that the Philippines has the seventh highest TB incidence in the world and the second highest in Asia. Moreover, disability and deaths due to TB result in an estimated P7.9 billion of foregone wages and benefits (Burden of Disease Study, Philippine TIPS, 2003).

In an effort to rationalize its TB control program, the Philippine government has adopted since 1996 a proven cost-effective TB treatment protocol called the Directly Observed Treatment, Short Course (DOTS) under the National Tuberculosis Control Program (NTCP). Despite its vigilance, however, the government has met with only limited success in controlling TB in the country. This shortcoming has prompted a review of past policies and programs in relation to TB. Many of these studies, however, are largely focused on the public health service delivery system, understandable, perhaps, because of the perception that TB, being a public health problem, is primarily a government concern. Historically, however, it is the private sector – particularly the Philippine Tuberculosis Society, Inc. – that pioneered TB control in the country during the early 1900s. And to this day, the private sector continues to play a significant role in TB control efforts. It has become increasingly clear that enlisting the support of the private sector in the management and control of TB is essential if the fight against TB is to be won.

In response to the identified need to secure greater support from the private sector in TB control and management, it was determined that an evaluation of the implications of existing TB policies, programs and instruments on the decisions of private physicians to provide TB DOTS services is needed. This is the prime objective of this study.

A study of the TB situation in the Philippines reveals several disturbing facts:

- More than 50 percent of all Filipinos with TB either refuse or are unable to access modern medical treatment, with a sizeable proportion choosing self-treatment or to consult traditional healers.
- About a third of all Filipinos with TB symptoms who sought treatment prefer to consult private physicians for treatment. But a large number of private doctors seeing TB patients prefer, for various reasons, to use treatment options other than TB DOTS, a treatment preference which has serious implications on the quality of care that TB patients receive. Aside from addressing personal and professional issues behind the non-adoption by private doctors of the TB DOTS protocol, it's also necessary to see how government policies and programs related to TB help or hinder the adoption of TB DOTS by private doctors.
- Access to cheap TB drugs is essential for full and effective treatment and is one of the cornerstones of TB DOTS protocol. And yet, outside of the public sector where TB drugs are available for free or at minimal cost, the prices of TB drugs have been found to be beyond the reach of poor patients.
- Indeed, it turns out that financing for TB treatment is still largely a private household burden. Despite the provision of TB treatment for free or at minimal cost in government facilities, families of TB patients still end up bearing a major part of the expenses entailed in TB management and control,

much of which is taken up by the cost of TB drugs. Without greater incentives and financial support at the individual household level, there is a great possibility that the patient will discontinue the course of treatment, a development which has grave implications not just for the health of the patient, but for the patient's immediate family as well.

How, then should the private sector, especially private medical practitioners, be encouraged to get more involved in TB management and control in a more organized manner and in line with TB DOTS protocol? And in relation to this study: How could government policies and programs be improved so that these encourage private doctors to join the TB management and control campaign more aggressively and to follow TB DOTS protocol?

Government policy actually encourages collaboration between government agencies and the private sector in the effort to manage and control TB. Executive Order No. 187 recognizes the Comprehensive Unified Policy for TB Control (CUP) as the new public-private strategy against TB. It consolidates all government policies on TB with the aim of strengthening TB DOTS service delivery by the public sector. It also recognizes the role of the private sector, although not even this policy details the terms of engagement between public agencies and private service providers. Indeed, while the CUP sets out clinical guidelines on the full and proper treatment of TB patients following DOTS protocol by both government and private doctors, it contains no enforcement mechanisms to ensure compliance by private practitioners.

Of the various policies and programs reviewed, the most promising is the TB Outpatient Benefit Package of the Philippine Health Insurance Corporation (PhilHealth), which, beyond creating an enabling environment for the private sector in TB management and control, offers a financial incentive for the adoption of TB DOTS protocol by the private sector.

Otherwise, the evaluation of government policies and programs related to TB indicates that these policy interventions have been chiefly targeted at the public health care delivery system. At best, major interventions such as the National Tuberculosis Control Program (NTCP) and the TB programs of government agencies only provide information to the private sector. Most of the existing TB DOTS policies are not designed to elicit the participation of private physicians. At the same time, regulatory policies that affect private physicians are not particular to TB DOTS.

Of utmost urgency are policy changes addressing two major concerns:

- Ensuring patients quality of care from private physicians, and
- Assuring TB patients of continued access to TB drugs.

Private doctors are more likely to follow TB DOTS protocol if doing so means being rewarded for it – financially, through, among others, PhilHealth's package of benefits, or through public and professional recognition and continuing education.

Addressing the problem of continued access to quality TB drugs will involve formulating policies with which stakeholders across both public and private spheres will agree. Among the identified players: the DOH and BFAD which regulate the entry and availability of drugs in this country; the drug industry, including suppliers, manufacturers and retailers; and the end-users, public and private doctors and their patients. Among the possible strategies: alternative drug distribution mechanisms and pooled procurement of drugs.

In summary, while government wishes to strengthen public-private partnerships in TB management and control, as shown by the adoption of the CUPTCP that recognizes the role of the private sector in the campaign, it needs to set about partnering with the private sector in a more deliberate and assertive manner. Policies providing financial incentives to private doctors who follow TB DOTS protocol, such as the PhilHealth benefit package, are certainly promising.

Beyond financial incentives, government must also map strategies to ensure greater compliance among private doctors with TB DOTS, through information and education campaigns, the enforcement of standards, especially among laboratory personnel to inspire doctors' confidence in their findings, and assuring patients a continuous supply of TB drugs by helping to bring down prices outside of the public sector.

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INTRODUCTION

The Department of Health reports that in 1996 TB ranked fifth among the ten leading causes of death and illness (mortality and morbidity) in the Philippines. In 1999, the country ranked second only to Cambodia in the Western Pacific Region in terms of new TB cases. The 1997 National Tuberculosis Prevalence Surveys (NTPS) found only a marginal decline in the annual risk of TB infection from 2.5 percent to 2.3 percent in the 15 years since the previous NTSP survey in 1982-83. Other estimates are no less alarming. In 2000, the World Health Organization (WHO) projected that there were 249,655 new cases of TB in the country. This translates to the Philippines ranking seventh among the countries with the highest TB incidence in the world, and the second highest in Asia.

Apart from the toll in human lives and health, TB exacts a heavy toll on the economy, too. The disease afflicts a significant proportion of the male population of income generating age. Losses due to lost productivity translate to foregone wages or income estimated at P7.9 billion, or roughly two percent of the country's Gross Domestic Product in 2002. And as long as TB incidence remains at the currently high levels and has the capacity to infect as much as half of the country's population, then these losses are likely to increase, dampening the country's development prospects.

TB kills, but before this, if left untreated, the disease can leave infected individuals too weak to work or care for their loved ones, becoming a burden to their families who are, moreover, in danger of getting infected themselves. And yet TB is curable and, once an infected person starts getting treatment, his or her capacity to infect others is minimized if not eradicated, and the person should be able to return to full productivity in no time.

Clearly, TB as a public health problem need not remain as intractable as it seems to have been for the greater part of the last century. While the first organized TB control measures were initiated by the private sector, particularly the Philippine Tuberculosis Society, Inc. which was founded in the early 1900s, TB these days has become primarily a government concern, addressed mainly by government health institutions and providers. And yet, a significant proportion of Filipinos with TB seem to prefer to consult private doctors. If the Philippines is to make any headway in the management and control of TB, it seems evident that the private sector needs to be encouraged to play a bigger role in the campaign. At the same time, government must ensure that patients receive only the highest quality of care, meeting standards of treatment that have already been proven effective and accepted worldwide.

In 1996, the government adopted the Directly Observed Treatment, Short Course (DOTS), a proven cost-effective treatment protocol for TB, under the National Tuberculosis Control Program (NTCP). Since then, public hospitals and health facilities have increasingly used the DOTS protocol, with its five essential components:

- Political commitment to provide the necessary funds and enact the necessary policies and laws to control TB
- Case detection by sputum smear microscopy among symptomatic patients self-reporting to health services

- Standardized treatment regimen of six-eight months for at least all confirmed sputum smear positive cases, with directly observed treatment for at least the initial two months
- Regular, uninterrupted supply of all essential anti-TB drugs
- Standardized recording and reporting system that allows assessment of treatment results for each patient and of the TB control program overall.

The adoption of the DOTS protocol by government has led to impressive gains in TB control and management efforts. Despite proof of the efficiency and effectiveness of DOTS, however, the private medical sector, particularly the physicians, have yet to fully embrace DOTS as the treatment protocol of choice for their TB patients. Many reasons have been advanced for the private sector's resistance to adopting DOTS, among them doctors' continued reliance on x-rays as their primary diagnostic tool, and excessive regulatory and monitoring policies that make it difficult or inconvenient for private doctors to adopt DOTS.

One area of inquiry deemed necessary for the creation of wider public-private partnership in TB control is a review and evaluation of existing TB policies, programs and instruments and how these influence the decisions of private physicians and the rest of the private health sector to provide TB DOTS services.

This policy analysis seeks to answer the following questions:

- What policies and programs encourage or discourage private sector participation in TB control efforts?
- How should hindering policies be revised to make the adoption of DOTS more attractive to private physicians?
- How can the government encourage the adoption of DOTS by private doctors while ensuring that they meet standards of quality care?
- What other policy options and issues can be explored to strengthen the partnership of government and the private sector in the fight against TB?

Government policies, programs and instruments for TB control can be analyzed in terms of their direct and indirect effects on the decisions of the various players involved, whose choices and actions ultimately affect health outcomes. Embedded in government policies are sets of incentives and constraints that either positively or adversely affect the choices not only of the targeted players, but often also those of other players in the market for TB DOTS services. There are four sets of players in the market for TB DOTS services, namely: service users (or consumers), health financing institutions (or third-party payors), the service providers (or suppliers), and the government (comprising national government agencies and local government units). Since the choices of all the market players jointly determine the health outcome, a full accounting of the intended and unintended consequences of policies is therefore necessary.

Many policies are promulgated with only indirect reference to TB, but which have implications on the supply of and demand for TB services. Restrictive licensing requirements for hospitals and laboratory facilities, for example, could limit the availability of sputum microscopy in private health facilities. Thus, with the mapping of policies onto the elements of DOTS strategy, it may be possible to spot the inconsistencies, conflicts or overlaps in the different government policies and programs. Appropriate corrective measures may then be adopted.

TB DOTS services as a product

TB DOTS services have special features that differentiate it from other available products in the market. First, TB DOTS is essentially a bundle of goods and services, whose clinical and economic values are diminished if consumed incompletely. An incompletely treated patient poses greater clinical risks because of the likelihood of developing a multi-drug resistant TB strain which is more difficult and more expensive to treat. Moreover, an incompletely treated patient may also unwittingly expose others to TB, thus increasing the economic burden of the disease. Since a complete course of treatment is necessary, this would require commitment of both financing and time from the patient. Various incentive schemes like health insurance and company-provided health services are some mechanisms that help secure the patient's commitment to staying the course.

The other critical feature of TB DOTS as a product is that it is an *experienced good*, i.e., its true quality can only be ascertained once consumed. It is unlike a *search good* whose quality is easily ascertained through ocular inspection. Given the potential and irreparable harm of substandard TB DOTS services to the patient's health, then quality should be foremost among the factors influencing a patient's decision to avail of TB DOTS services from a service provider. This is the reason the quality of TB DOTS services is an important policy issue, and therefore, the main rationale for regulations.

The demand side of the market comprises the segment of the population that needs TB DOTS services. Besides the overall health status of the population, however, the other primary policy concern is the public's effective access to TB DOTS services. The factors that influence health-seeking behavior of consumers of TB services include financial, psychological, physical or socio-economic factors. Among the most relevant to policy of these factors are the consumer's knowledge and awareness of TB, household income, direct and indirect costs of TB treatment, insurance coverage and the social stigma attached to TB.

The service providers

The supply side of the market consists of service providers that include public and private health professionals, facilities, and the sellers of drugs, medicines and equipment. They vary in location, practice setting, cost and pricing protocols, residency training, years of practice and, most importantly, willingness to provide TB DOTS services. However, these characteristics are often within the control of the service provider, and, therefore, may be influenced by financial and non-financial factors.

Two sets of information are critical to the formulation of policies that will enhance the participation of private physicians in TB DOTS, namely: their existing capacity (knowledge, availability) to deliver TB DOTS services; and the factors that influence their willingness to provide adequate and quality-assured TB DOTS services. Thus a profile of all doctors in the country is essential. The profile would include information on their competence and capacity to deliver DOTS, treatment and pricing practices, and patient load characteristics. With this information, appropriate policy instruments like information dissemination, social recognition, or financial incentives may then be adopted to enhance the participation of private doctors in providing TB DOTS.

The health financing institutions

Unlike most markets, the market for TB treatment involves a third party that directly pays the service providers and insures the service users against losses due to TB. The third-party payers include both the public and private health financing institutions. Clearly, therefore, the particulars of the benefit coverage and reimbursement schemes adopted by these institutions will determine not only the health seeking

behavior of the insured TB patients but also the effective participation of private doctors in the market for TB services. Thus the following sets of information are critical:

- The membership profile of the different health financing institutions;
- The amount and nature of benefits extended to eligible members and dependents;
- Accreditation policies and reimbursement schemes concerning service providers.

These data would enable policymakers to assess the extent of insurance coverage of people with TB, the effective benefits received by the insured population and some of the factors that limit private sector participation in TB DOTS.

The government

The government is the single biggest and most influential market player. Relative to each of the other players, it has more resources, controls more potent instruments to influence others, and has the bigger mandate to eradicate TB in the country. This mandate to eradicate TB has its economic basis.

The first economic rationale concerns the inefficiency of the market due to demand-side externalities. Such externalities arise when a TB patient may not be aware of the full consequences of incomplete treatment, which include the increased risks of infection imposed on others and the likelihood of the patient's developing a Multi-Drug Resistant TB strain. Even if patients are fully aware, however, they may still not complete treatment because they have not yet fully internalized the social benefits of TB cure, while individually patients bear the full cost of treatment. Consequently, patients would seek a lower level of treatment than socially warranted if left on their own. Government intervention is thus justified.

Equity consideration is another rationale for government intervention. Since TB afflicts the poor more than any other income groups, the poor shoulder a disproportionate share of the economic burden of TB and suffer a lower quality of life. Thus government intervention is warranted to improve the health of the poor, and thereby expand their economic opportunities and enhance their quality of life.

Since both reasons arise from weakness or failures on the demand side of the market, demand-side policy interventions like social health insurance therefore are the most appropriate, other things being equal. However, given resource constraints and the difficulty of targeting and monitoring TB-afflicted population groups, supply-side interventions such the public provision of services are employed.

Social health insurance and public provision of services are the better known TB interventions. In addition, the government also influences the choices of market players in other ways. The other forms of interventions include the conduct of advocacy, information and education campaigns and the regulation of market players. Accreditation, licensing, certification, and other regulatory policies essentially restrict the actions and number of service providers for quality assurance purposes.

In general, however, the different forms of government interventions may be directed at the demand-side, supply-side, and financing-side of the market. For example, subsidies and other tax breaks may be granted to HMOs (financing side) or private hospitals and clinics (supply side). Regulations and licensing requirements are imposed on HMOs and all hospitals in the country. Likewise, the practice of medicine and other health professions is regulated through board exams. Yet, some policy pronouncements are simply meant to coordinate the actions and expectations of the various market players.

Often, however, policy interventions in one side of the market lead to unintended and possibly adverse reactions from the other sides of the market. To illustrate, while public provision of TB services may bring down TB incidence, it may also crowd out private providers who may not be able to compete with subsidized prices in public hospitals and other health facilities. Thus, a full evaluation of both the intended and unintended consequences of TB policies, especially as these impinge on the decisions of private physicians, is necessary.

Role and reach of the private sector

Why is it necessary to seek out and encourage greater private sector participation in TB control and management efforts?

The results of the 1997 NTPS show some disturbing patterns of health seeking behavior among Filipinos with TB. (Table 4A). More than one-third (34.5 percent) of them chose not to seek any form of treatment, while more than a fourth (27.5 percent) resorted to self-care or sought treatment from traditional healers. The rest of the population of those with TB went to see a health professional, initially either in a public health center (15.5 percent), private clinic (10.4 percent), public hospital (9.8 percent) or private hospital (2.3 percent). The failure of individuals with TB to seek any medical attention is disturbing because, aside from the potential health risks they face, they may unwittingly be exposing others to the same health risks as well.

Table 4A. Treatment-seeking by the TB Afflicted (in percent)

Provider/Facility	Initial Provider	Subsequent Provider
No treatment	34.5	
Self care/traditional healer	27.5	
Public health center	15.5	6.4
Private clinic	10.4	0.8
Public hospital*	9.8	1.6
Private hospital*	2.3	0.4

Source of raw data: 1997 NTPS. *Hospital proportions were generated using the 2001 UHNP End-of-Project Evaluation Survey.

Why do so many individuals with TB refuse to seek treatment despite the availability of publicly provided TB services throughout the country? One oft-cited reason is the social stigma attached to TB being a “poor man’s disease.” A study conducted by Dr. Grace Ortaleza (*Vignettes on TB Stigmatization, 2003*) shows that most informants remain ignorant or poorly informed about the causes, spread or transmission, recognition, or proper treatment of TB. The stigma attached to TB forces patients to isolate themselves from the rest of the community, with the other members of their families affected by the same stigma, too. The general public’s low level of knowledge about TB is disturbing, despite the fact that more and more people are exposed to TB campaigns on TV, radio and print media (*SWS Surveys on Tuberculosis*). Clearly, a more effective and extensive information and education campaign is called for.

The 1997 NTPS also reveals that a significant proportion of TB patients seek professional medical care from private providers (Table 4B). Estimates from the study show that around one-third of those with TB go to either private clinics or private hospitals. This clearly indicates that private health care providers play a vital role in the control and management of TB in this country.

Table 4B. Choice of Initial TB Treatment Providers (in percent)

Provider/Facility	Initial Provider
Public health center	40.8
Private clinic	27.4
Public hospital*	25.8
Private hospital*	6.0

Source of raw data: 1997 NTPS. *Hospital proportions were generated using the 2001 UHNP End-of-Project Evaluation Survey.

The role and reach of private doctors in TB management and control are further borne out by the results of the 2002 PhilCAT Survey of 188 medical doctors (Table 6). The results indicate that doctors who have purely private practice (in private clinics, HMOs, or company clinics) see about 35 patients per clinic per day. The same table, however, shows that doctors with pure private practice see more TB patients per week (8) compared to those with mixed private-public practices. It's also fairly obvious that doctors with purely private practice seem to attract significantly more new TB cases at 3.7 patients per month.

Table 6. Average Patient Load

Practice Setting	Number of MDs	Per clinic per day	TB patients per week	New TB cases per month
Mixed Practice	9	14.7	5.6	2.6
Pure Private	100	35.0	7.8	3.7
Total	109	33.4	7.6	3.6

Source of raw data: 2002 PhilCAT Survey of 188 MDs.

Why do Filipinos with TB resist or postpone seeking treatment for the disease, despite the availability of services and drugs in public health centers? And when they do seek treatment, why does such a large number prefer to see a private physician?

Based on the review of previous studies and the feedback from key informants and participants during the focus group discussions, the following observations could help explain the household preference for private providers:

- Irregular supply of TB drugs in public health centers;
- Limited attention extended by public physicians to their patients (who are more comfortable consulting a doctor rather than a midwife or a nurse);
- Superior interpersonal skills of the staff in private facilities;
- Relative anonymity accorded to patients in private facilities (which help them avoid TB stigma in public facilities); and
- Parents tend to bring their children for treatment in private health facilities, even though they themselves may not seek any treatment or go first to public providers (thus the high proportion of pediatric TB cases in the total patient load of private providers).

Obviously, the informants' preference for private doctors and services can be attributed to other quality aspects of private medical care, not necessarily DOTS. Indeed, further analysis of the 2002 PhilCAT Survey reveal that, although a significant number of private physicians reported awareness of DOTS, very

few of them have the requisite competence to deliver DOTS or comply with the prescribed protocols for case finding and case holding. Table 7 shows that a majority (75 percent) of the doctors engaged in purely private practice are aware of DOTS; although when probed further, a variable and smaller percentage of the sub-sample of medical doctors interviewed knew each of the elements of DOTS (Table 8).

Table 7. Awareness of DOT among Medical Doctors

Practice Setting	Total Number	Percent Aware
Mixed Practice	25	76.0
Pure Private	160	72.5
Total	185	73.0

Source of data: 2002 PhilCAT Survey of 188 MDs.

Table 8. Awareness of DOT elements among Medical Doctors

DOT elements	Total Number	Percent Aware
Diagnosis through sputum smear microscopy	63	52.4
Availability of TB drugs	63	58.7
Recording and reporting system	63	42.3
Requires a treatment partner	63	63.5
Political commitment	63	25.4

Source of data: 2002 PhilCAT Survey of 188 MDs.

Perhaps of greater policy concern is the small proportion of doctors who comply with the NTCP-prescribed initial TB diagnostic procedure and treatment regimen for various categories of TB patients. Table 9 shows that 41.4 percent of doctors did not use AFB Smear Test as the initial TB diagnostic procedure and only 5.4 percent of these doctors use AFP Smear Test alone, contrary to the NTCP guidelines. At least two out of five private physicians do not use smear exam initially.

Further, Table 10 shows that only 22 percent of the doctors in purely private practice appear to have followed the NTCP-prescribed chemotherapy short course for new smear-positive cases (Category 1), but none of them observed the suggested drug regimen for those who reported treatment failure (Category 2). Only in the case of smear-negative cases (Category 3) did the majority (about 65 percent) of doctors with purely private practice appeared to have complied with the suggested drug regimen. These findings are broadly supported by other studies (*e.g., Portero and Rubio [2002] ; see box inset*).

Table 9. Choice of Initial TB Diagnostic Procedures

Practice Setting	Number of MDs	Did not use AFB Smear Test (%)	Used AFB Smear Test (%)		
			Only	With X-ray	With X-ray and PPD
Mixed Practice	25	28.0	24.0	28.0	20.0
Pure Private	161	43.5	2.5	28.0	26.1
Total	186	41.4	5.4	28.0	25.3

Source of raw data: 2002 PhilCAT Survey of 188 MDs.

Table 10. Percentage of MDs who followed the NTCP-Prescribed TB Drug Regimen

Practice Setting	Followed NTP-Prescribed Drug Regimen by Type of Patient		
	Category I/(new smear+)	Category II/(treatment failure)	Category III/(new smear -)
Mixed Practice	27.7/(11)	0/(8)	72.7/(11)
Pure Private	21.6/(51)	0/(42)	64.7/(51)
Total	22.7/(62)	0/(50)	66.1/(62)

Source of raw data: 2002 PhilCAT Survey of 188 MDs. Note that the figures in parenthesis are the total number of MDs who reported to have prescribed TB drugs.

Feedback from key informants and the participants during the FGDs, point to several factors that could explain the limited capacity of the private sector to deliver TB DOTS services, including:

- Lack of NTCP awareness, especially of the suggested drug regimens for various categories of patients;
- Perceived incompetence or inadequacy of public health staff to undertake spectrum microscopy;
- Lack of DOTS training in medical school;
- Complaints raised by patients regarding the difficulty of expectorating sputum, and the poor guidance provided by public health staff;
- Incentives (like honoraria, sponsorship to conferences) provided by the pharmaceutical companies to follow their own suggested drug regimen; and
- Lack of coordination between public and private providers in the treatment of patients referred to public health facilities (which results in the duplication of exams).

These and other factors will be discussed in greater detail in succeeding chapters, with policies mapped according to their relevance to specific DOTS elements.

THE POLICY ENVIRONMENT

An Inventory of TB and Related Policies

Since TB was identified as a major public health problem in the Philippines, its eradication and control have been a top priority of government. In 1932, Republic Act No. 3473 created the TB Commission under the then Philippine Health Service for the purpose of providing impetus to TB control efforts. This was followed by other efforts to control TB, the latest being Executive Order No. 187 that recognized the Comprehensive Unified Policy for TB Control as the new public-private strategy against TB. Despite its vigilance, however, the government has not been totally successful at its efforts, prompting others to review past policies and programs with the objective of strengthening and introducing innovations into the current TB programs.

Policies to Stimulate Private Sector Participation in TB Treatment

Shown in Table 1 are the supply-side interventions that include direct provision of TB services in the public health sector and regulatory policies that affect all health professionals and facilities. Principal among the demand-side interventions shown in Table 2 are health insurance schemes and other financing programs that improve the access of health service users to providers. Thus, while supply-side interventions directly influence the availability and quality of health services provided, demand-side interventions only help facilitate access to such services. It should be noted, however, that a number of TB policies simultaneously affect the supply of and demand for TB services.

Among the supply-side policies and programs that directly concern the availability and quality of TB DOTS services in the public sector, the principal ones are:

- The Health Sector Reform Agenda (HSRA) and the National Tuberculosis Control Program (NTCP) of the Department of Health
- TB Prevention and Control Program of the Department of Education
- Local Government Tuberculosis Control Strategy of the Department of the Interior and Local Government, and
- Support to the National TB Control Program of the National Economic and Development Authority.

At best, these interventions only provide information to the private sector, and thus, do not fully encourage private sector involvement in TB DOTS. At worst, these programs may even have adversely affected private sector participation. A look at the design and implementation features of these policies is revealing:

1. **The NTCP is directed primarily at the public health system.** Information and education campaigns concerning TB DOTS and other incentive schemes are directed at government doctors and facilities. Publicly procured TB drugs are distributed at government health centers. Also, it does not include, much less specify a function for, the private sector in the list of health workers tasked to carry out the NTCP.

2. **The TB programs adopted by other national government agencies apply only to their own employees and dependents, such as those of the Department of Education and Department of National Defense.** Further, the TB DOTS service providers in these agencies are also government workers.
3. **DILG Memorandum Circular No. 98-155 only vaguely defines public-private partnerships in local TB control.** It does not specify how such partnerships may be formed, mobilized and sustained. Also, it appears that the implementation of this policy is not monitored.
4. **Applicable NEDA policy directly concerns only private voluntary activities in TB control, thus excluding the majority of private physicians.**
5. **Current occupational health and safety standards do not prescribe the application of TB DOTS.** Thus, the private corporations are allowed to choose their own mode of TB treatment.

Among the relevant government regulations and their possible implications on private physicians' provision of TB DOTS services are the following:

- Policies on generic drugs (RA 6675; DOH AO#51, s. 1988; AO#55, s. 1988; AO#62, s. 1989; AO#63, s. 1989; AO#65, s. 1992). These policies regulate the prescribing, labeling, promotion and dispensing of drugs in both public and private sectors.
- Laws on drug manufacturing and dispensing (RA 3720; RA 5921). These limit the manufacturing of drugs to licensed drug producers, and grant sole authority to dispense drugs to licensed pharmacists.
- Policies on hospital establishment and operation (RA 5921; DOH AO#70-A, s. 2002). These specify the human and other resource requirements for operating a hospital, and therefore, laboratory facilities in the country.
- Essential drugs list (RA 6675; EO 49, s. 1993; BFAD Circular #01, s. 1997). These policies identify, among others, the essential drugs that must be prioritized in government procurement, and the requirement for bioavailability tests for such drugs.
- Policies to lower the price of selected drugs through parallel importation (DOH AO N#85, s. 2000; DOH AO#69, s. 2001; DOH DO#367-H, s. 2001; DOH AO#70, s. 2002). These administrative orders set the guidelines for the Pharma 50 Project of the DOH, in line with the promises of President Gloria Macapagal Arroyo in her 2001 SONA. Since the privilege to participate in the parallel drug importation is limited to government agencies, this policy may crowd out private drug companies and distributors. This may also lead to a more aggressive marketing of branded drugs among private physicians.
- Policies on government procurement of goods and services (RA 9184). This policy unifies and updates all government procurement procedures. With the new procedures, it is expected that bidding competition among private suppliers will become more transparent and fairer, leading to lower prices and improved quality of drugs, medicines, health equipment and services. The implementing rules and regulations (IRR) of RA 9184 are currently being finalized by the Department of Budget and Management.

Arguably, the regulatory requirements are imposed to ensure that quality care standards are followed for the protection of the patient. The full impact of these policies, however, largely depends on their enforcement. But it appears that the enforcement capacity of implementing agencies is very limited.

In their study on the poor's access to affordable drugs, Lim and Pascual [2002] report that BFAD lacks the appropriate capacity to ascertain the quality of medicine through inspection, registration and licensing of drug manufacturers. Further, the authors conclude that "...only 16 of the 80 or so pharmaceutical manufacturers are 100% compliant with current good manufacturing processes. There are complaints that culprits responsible for counterfeit and substandard drugs are not properly prosecuted and punished." The personnel resources of the NTCP are also reportedly inadequate, largely as a result of the streamlining of the DOH bureaucracy in the late 1990s. This results in delays in the retrieval of quarterly NTP reports and the reduced number of field visits and supervision by the DOH and CHD TB staff.

Recent policy developments, though, ascribe an expanded role for the private sector in the national campaign against TB. Specifically, Executive Order No. 187 mandates the collaboration between the national government agencies on the one hand, and private sector organizations, on the other, in the conduct of an information and education campaign for the Comprehensive and Unified Policy for Tuberculosis Control in the Philippines (CUPTCP). Those in the private health sector enjoined in the campaign are the Philippines Coalition against Tuberculosis (PhilCAT), Philippine Medical Association, and the Association of Health Maintenance Organizations of the Philippines. Furthermore, the CUPTCP deputizes the PhilCAT to carry out monitoring and accreditation functions.

Other recent DOH initiatives include the Health Sector Reform Agenda (HSRA) and its implementing guidelines (DOH A.O. #37, s. 2001) and the promotion of DOTS services in private clinics. The HSRA sets among the national health objectives the increased DOTS coverage to 100 percent of the population and the increased compliance among private doctors with the National Consensus on TB Diagnosis and Treatment. In line with the promotion of DOTS, the DOH in 2002 has formally agreed with United Laboratories, Inc. (Unilab), a private corporation, to supply Unilab with TB drugs to be used for the treatment of TB patients in its clinics.

Policies to promote TB patients' access to DOTS

Unlike supply-side policies, demand-side policies and programs only indirectly affect private sector participation in TB DOTS. While these policies are designed to stimulate the demand for TB services, however, they could influence the patient's decision to seek treatment and, even less so, his or her choice of health service provider. The principal demand-side policies and programs are:

- The social health insurance packages of the Philippine Health Insurance Corporation (PhilHealth), and
- The disability payment policies of the Government Service Insurance System, Social Security System and Employees Compensation Commission.

While not specifically intended for TB, the total benefits provided by PhilHealth, SSS, GSIS and ECC to their members who used such benefits for TB treatment are substantial. For example, PhilHealth, SSS and GSIS together paid close to P100 million in 2001 for TB treatment. While no estimates exist, a portion of this amount was spent presumably for privately-provided TB services. There is need, though to align compensation policies, especially of the SSS, GSIS and ECC with TB DOTS guidelines.

In April 2003, PhilHealth adopted a new benefit package that promotes TB DOTS in the private sector. Now called the TB Out-patient Benefit Package, the new program extends the flat rate of a P4,000-benefit

to each qualified member or a dependent for outpatient TB treatment in accredited DOTS clinics or providers, which may be public or private. However, the amount shall be released directly to the DOTS center and in two tranches: P2,500 upon the initiation of treatment, and P1,500 upon successful completion of the treatment. Originally planned for implementation in seven DOTS clinics, the new program is currently being fine-tuned with the help of PhilCAT. The detailed design and implementation features of the program will prove critical in engaging the private sector in TB DOTS.

To conclude, most of the existing TB DOTS policies are not designed to elicit private physicians' participation; and regulatory policies that affect private physicians are not particular to TB DOTS. However, the CUPTC and the PhilHealth's TB OP benefit package are initial steps in the right direction.

POLITICAL COMMITMENT

Viewed from a different lens, the various TB and TB-relevant policies arrayed according to their relevance to the specific DOTS elements may yet reveal other areas for policy intervention. Such an array is attempted in Table 3, where the supply-side and demand-side interventions are displayed.

It can be seen from the table that all elements of the DOTS strategy are directly promoted, although mainly in the public sector, by a number of supply-side policies, namely: HSRA and DOH AO#37, s. 2001; NTCP, NEDA Support to NTCP; DepEd –TB Prevention and Control Program; and the DILG Memorandum Circular #98-155. In contrast to the other government agencies, however, only the DOH and DepEd are in a command position to carry out fully the DOTS strategy, owing to their mandates and own TB programs. While these policies allow for private sector participation in TB DOTS, they will have to be amended to include specific roles and functions for private physicians, and the possible terms of reference for public-private partnerships in TB DOTS. The partnership may involve patient referrals, access to drugs and lab facilities, and maintenance of a TB patient registry.

Two recent policies explicitly draw in the involvement of the private sector in all aspects of TB DOTS. One, EO 187, s. 2003 provides at least the enabling environment for public-private partnership in TB DOTS as specified in the CUPTC. In contrast, the new TB-OP Benefit Package of PhilHealth offers more than an enabling environment. It is a financial incentive meant to entice private physicians to adopt the DOTS protocol. To the accredited physician, the new insurance program may yet lead to a windfall, provided that a number of design and implementation issues are addressed at once. Among these issues are the caps on professional fees, public-private referral system, access to cheap drugs for private TB patients and the expansion in the number of certified DOTS centers.

Providing financial incentives may be justified by findings that show that besides the social stigma and poor information that discourage a person with TB from seeking treatment, the decision to see a doctor or visit a clinic also depends on the household's financial resources. Table 5 shows that households constitute the biggest sources of funds for battling TB. The common view is that since TB is a communicable disease it therefore must be primarily a government burden. But the accounting of TB funds in 2001 shows that 56 percent (or P309.5 million) of the total constitutes the households' share, significantly exceeding the 33 percent-share of the government. This suggests that households bear a bigger financial burden than the government, despite the fact that TB is a public health concern and that the government has identified the control of the disease as among its top health priorities.

Moreover, while it is widely believed that TB services are provided free of charge in public hospitals and clinics, households still seem to be spending a fairly large amount to avail of these services. Estimates show that in 2001 households spent P124.8 million for these services, or 40.3 percent of their total TB expenditures. While this may be due to the fact that TB DOTS services are more readily available in public than in private health facilities and that TB drugs are provided free in government facilities, a significant percentage (37 percent) of the total household payments was spent on private providers. In 2001, this amounted to P115 million.

Table 3. Relevance of Existing Policies to the Elements of DOTS Strategy

Policies	Elements of DOTS Strategy*					Remarks
	Political Commitment (Financing)	Directly Observed Treatment	Access to TB Sputum Microscopy	Adequate Supply of TB Drugs	Recording and Monitoring	
<i>Supply-Side Interventions</i>	Directly promote all DOTS elements in the public sector.					- Amend to delineate a specific role for private MDs and the terms of partnership between public and private providers of TB DOTS.
Health Sector Reform Agenda						
DOH A.O. # 37, series 2001						
National TB Control Program						
NEDA-Support to NTCP						
DepEd- TB Prev. and Control Prog.						
DILG Memo. Circular # 98-155						
E.O. # 187, series 2003 (CUPTC)	Directly promote all DOTS elements in both the public and private sector. Public-private partnership limited to training and information dissemination of the CUPTC.					- Issue another E.O. to fully operationalize the CUPTC.
DOLE-OSHS		Allows all employers to choose TB treatment regimen for employees				- Require annual physical exams of employees to be consistent with NTP
Food, Drugs and Cosmetics Law				Drug regulatory policies apply to both public and private sectors		- Monitor compliance in the private sector - Undertake information and education campaign - Adopt incentives to countervail the ones offered by private drug companies
Pharmacy Law						
Hospital Law			Affects availability of lab facilities			- Should be consistent with certification requirements for TB DOTS
Government Procurement Reform Law			Applies to all procurement in the public sector.			- IRR should help insure availability of TB drugs in RHUs and DOTS centers.
E.O. # 49, series 1993				Applies only to the public sector		- Promote PNDF in the private sector

* Gray areas mean no direct relevance.

Table 3. Relevance of Existing Policies to the Elements of DOTS Strategy (continuation)

Policies	Elements of DOTS Strategy*					Remarks
	Political Commitment (Financing)	Directly Observed Treatment	Access to TB Sputum Microscopy	Adequate Supply of TB Drugs	Recording and Monitoring	
<i>Supply-Side Interventions</i>						
Generics Drug Law				Promote generic drugs for TB and other diseases in the public and private sectors		<ul style="list-style-type: none"> - Monitor compliance in the private sector - Undertake information and education campaign - Adopt incentives to countervail the ones offered by private drug companies
DOH A.O. # 51, series 1988						
DOH A.O. # 55, series 1988						
DOH A.O. # 62, series 1989						
DOH A.O. # 63, series 1989						
DOH A.O. # 65, series 1992						
BFAD Circular # 01, series 1997						
DOH A.O. # 56, series 1989				Parallel importation to lower prices of selected drugs, excluding TB drugs		<ul style="list-style-type: none"> - Include TB drugs in the list - Allow local government units, private hospitals/drug distributors to participate in the importation of TB drugs
DOH A.O. # 85, series 2000						
DOH A.O. # 69, series 2001						
DOH D.O. # 367-H, series 2001						
DOH A.O. # 70, series 2002						
DOH A.O. # 70-A, series 2002						
<i>Demand-Side Interventions</i>	Directly promotes all DOTS elements in both the public and private sector					No caps on professional fees; ensure patient's access to free drugs; certify more DOTS centers
PhilHealth TB OP Benefit Package						
(Regular) PhilHealth TB IP Benefit Package			The beneficiary may choose his provider, who then suggest the TB treatment regimen			Amend to require sputum smear exam as part of annual physical exam, keep records and monitor treatment of workers with TB
GSIS-Disability Benefit Program						
SSS-Disability Benefit Program						
ECC-Employees' Compensation Program						

* Gray areas mean no direct relevance.

Table 5. Estimates of the Sources and Uses of Funds for TB Control in 2001 (in thousand pesos)

Uses	Sources													
	Household Payments				Government			PhilHealth	ECC	Pvt. Ins/ HMO	NGO	Com- pany	Total	
	Out-of-Pocket	SSS Benefit Payments	GSIS Benefit Payments	Total	NTP	FAP	LGUs	(Currently In-Patient only)						
Public Health Center	271,619	28,508	9,337	35,027	183,000	Not avail.	Not avail.	59,798					Not available	
Public Hospital				124,831										Not available
Private Clinic				115,016										
Private Hospital				34,590										
Self-Care / Traditional Healer	Not available			Not available									Not available	
Total	271,619	28,508	9,337	309,463	183,000	Not avail.	Not avail.	59,798	Not available				552,262 (underestimated)	

Note: Shaded cells indicate that these accounts do not exist. "Not available" means that these accounts cannot be estimated with the available data and the resources available to the study team.

- A. Out-of-pocket TB expenditures are calculated using the NSO population projection (medium) for 2001, the 1997 National TB Prevalence Survey (NTPS) prevalence rate and medical provider utilization ratios, and the 2001 End of Project Urban Health and Nutrition Survey (UHNP) average out-of-pocket TB treatment payments to providers. The number of TB patients seeking treatment from different providers is calculated by multiplying the estimated total number of TB patients with the utilization rates from the 1997 NTPS. The total number of TB patients is calculated as the product of 77,898,184 (2001 NSO (medium) population projection) times 3.1/1000 (1997 NTPS prevalence rate) divided by 2.2 (1997 WHO duration of disease estimate) divided by .45 (1997 WHO smear positive rate). Household payments by providers are calculated as number of TB treatment users by provider times the average out-of-pocket TB treatment payments.
- B. Government TB expenditures are based on estimated NTP expenditures for 2003. These estimates do not enable breakdown by type of facility. Apparently, some LGUs also spend for supplemental drug supplies. However, the total amounts, together with those coursed through Foreign Assisted Projects (FAP), can only be estimated in a more comprehensive data collection effort.
- C. PhilHealth TB expenditures are derived from in-patient claim payment estimates provided by PhilHealth to PhilTIPS. The provided estimates do not enable breakdowns by type of facility.
- D. SSS disability payments and medical expenses for TB cases are for 2002 and presently cannot be broken down by facility.
- E. GSIS disability payments and medical expenses for TB cases are for 2001 and presently cannot be broken down by facility.
- F. ECC disability payments and medical reimbursements for TB cases are not available because the information system is still under construction.
- G. The amount of funds generated by NGO's, Company provided benefits and HMO's can only be estimated in a more comprehensive data collection effort.

QUALITY OF CARE

An issue that has serious implications on the capacity of private doctors to provide quality care following the TB DOTS protocol is their lack of knowledge of and familiarity with the elements of TB DOTS. This is borne out by the findings of a recent poll conducted among physicians treating TB patients:

Private physicians' capacity and quality

Based on a telephone interview of 1355 private physicians (constituting 57.9 percent out of the total 2340 private physicians identified):

- The private physicians diagnosed TB mainly through X-ray findings (87.9 percent).
- The private physicians did not follow-up their TB patients, they did not trace the defaulters (97.9 percent) and did not study the contacts (91.4 percent).
- Only 24.2 percent of the private physicians knew in depth the National Tuberculosis Program (NTP).
- They defined the weakest points of the NTP being the diagnosis through sputum microscopy (59.2 percent) and the management of smear negative patients (27.9 percent).
- The majority of the private physicians wish to collaborate with the NTP (83.3 percent), although economic compensation (38.4 percent) is also deemed important.
- More than half was against obligatory case report of the TB cases.
- The private physicians based their success in attracting TB patients to their offices on the confidentiality (46.1 percent) and on the kind of treatment and the flexibility (43.7 percent).

From: Portero and Rubio [2002?]. "Private practitioners and tuberculosis control in the Philippines: Strangers when they meet?"
Medicos del Undo Spain Tuberculosis Project in the Philippines.

Critical to the success of TB DOTS treatment is the patient's continuous access to reliable TB drugs and microscopy centers. Often, however, patients in private clinics who otherwise have limited financial resources are referred to public health centers where such drugs and laboratory exams are provided free of charge or at minimal cost. Thus, the physician's knowledge regarding such public health facilities is important to the completion of TB treatment. The 2002 PhilCAT survey shows that more than about 93 percent and 61 percent respectively of private doctors know a health facility where either TB drugs are distributed for free or sputum smear exams are done at no cost to the patient. It should be noted, however, that referrals to these facilities, which are likely to be government health centers, do not ensure patients access to these services. Feedback from private practitioners suggests that some patients are not able to avail readily of such services without undergoing the requisite diagnostic procedures in the public health facilities.

Table 12. Physicians' Awareness of Health Facilities that Provide Free Services and Drugs for TB Patients

	Percent of Medical Doctors who are aware of	
	A health facility that offers TB drugs for free	A microscopy center that offers free sputum smear exams
Mixed Practice	25 (100%)	17 (68.0%)
Pure Private	115 (92.7%)	75 (60.5%)
Total	140 (94.0%)	92 (61.9%)

Source of raw data: 2002 PhilCAT Survey of 188 MDs.

Another critical element of DOTS is record-keeping and monitoring of TB patients, especially as they begin their short course chemotherapy. It appears that more than 90 percent of private physicians included in the 2002 PhilCAT survey appear to maintain clinical records of their TB patients' compliance with drug intake (Table 11). When probed further, however, a majority of the private physicians limited their monitoring to simply asking their patients whether they took their drugs. Thus, record-keeping and monitoring in the private sector may not necessarily follow the requirements of the DOTS protocol.

Table 11. Physician Practices on Recording and Monitoring of TB Patients

Practice setting	Percent of Medical Doctors who	
	Maintain clinical records of their TB patients	Monitor their TB patients' compliance to drug intake
Mixed Practice	10 (90.9%)	23 (92.0%)
Pure Private	104 (95.4%)	148 (94.3%)
Total	114 (95.0%)	171 (94.0%)

Source of raw data: 2002 PhilCAT Survey of 188 MDs.

In summary, there appears to be three policy issues concerning the provision of TB DOTS by private physicians, namely:

- Their continued reluctance to use AFB Smear Test as the principal diagnostic procedure (apparently because of a lack of confidence in the qualifications of laboratory personnel to correctly assess the findings of sputum smear tests);
- Their lack of knowledge of or compliance with the prescribed drug regimen for various types of TB patients which requires extensive record-keeping and monitoring; and
- The need to ensure their patients' access to drugs and laboratory facilities.

To address these issues, the private physicians themselves may adopt self-regulatory policies within their own medical societies. Peer pressure or acclaim, moral suasion, membership in medical societies are some of the regulatory instruments available to the private sector that can be used to promote TB DOTS among their ranks or used by the public sector to prod private doctors into greater compliance. PhilCAT is

an example of a private sector initiative, and in recent times the organization has been working closely with the Department of Health and the World Health Organization in promoting TB DOTS in the private sector. While PhilCAT is a broad coalition of health professionals, perhaps a similar initiative may be encouraged within the individual medical societies, especially those involved in the treatment of TB like the Philippine Academy of Family Physicians.

It seems clear that existing regulatory policies are not able to ensure that patients receive quality care from private practitioners, including accurate sputum microscopy services, uninterrupted supply of TB drugs, or the appropriate recording and monitoring of the treatment regimen. Given the apparent neglect of the role of the private physicians in the TB control program, it is not surprising that TB DOTS in the private sector is inadequate: meager supply, inferior quality and yet more expensive.

To address issues of quality of care (save for access to a continued supply of TB drugs which will be discussed in the next section), the following options for policy interventions and research are suggested:

Knowledge of and familiarity with TB DOTS

- Advocate for the inclusion of TB DOTS in basic medical education.
- Introduce DOTS modules in the continuing medical education of physicians.

Adoption of sputum smear tests as primary diagnostic tool

- Require all medical technologists and laboratory personnel that administer sputum tests to undergo the appropriate training and certification for the purpose. Publish or advertise the list of certified health professionals.

Overall quality of care

- Improve the regulatory capacity of the Bureau of Food and Drugs, the Bureau of Licensing and Regulation, and other concerned government agencies to ensure reliable drug quality and competence of technologists.

CONTINUOUS DRUG SUPPLY

Critical to the success of TB DOTS treatment is the patient's continuous access to reliable TB drugs and TB sputum microscopy.

Ostensibly, the parallel drug importation (PDI) policy¹ does not help the TB patient have access to cheap TB drugs. While the PDI policy is designed to bring down the domestic price of essential drugs, it does not include any of the TB drugs for importation through the PDI facility. While a separate TB drug procurement system with the same intended results as PDI may be currently employed, the PDI system seems more adaptable to elicit the participation of private drug suppliers and local government units. Reportedly, some local government units procure their own TB drugs from private drug suppliers to supplement their quota of TB drugs from the DOH. To bring down the price of drugs further, private drug suppliers may also have to be allowed to participate in the PDI system.

Bringing down the prices of TB drugs is of vital importance since the required chemotherapy constitutes the biggest cost component of TB treatment. In addition, the government's budget for TB control remains limited (the WHO-estimated funding gap for 2003 is US\$5.8 million). Reportedly, both the landed cost and the average retail price of imported TB drugs in the country are higher than is warranted. For example, a six-month TB DOTS regimen for Category 1 patient would cost around P5,390 (blister packs) or P8,450 (loose drugs), when the drugs are purchased from drugstores in Metro Manila. When the drugs are bought through the Global Drug Facility, however, the total cost of drugs for the same drug regimen is only about P910 (fixed dose). While this claim is not investigated here, for it will require a detailed cross-country cost or price comparison, it is broadly supported by previous studies.

In their review of domestic drug prices, Solon and Bauzon [1999] reports a wide range of retail prices for several drugs, including that of a box of 100 capsules of Rifampicin 450 mg., as shown in the table below. It is obvious from the table that the price variation between generic and branded products is considerable; it is also noteworthy that prices within each drug category also vary. The authors examined the possible reasons for the price differences, including: expensive marketing strategies adopted by manufacturers and distributors of branded drugs, the monopolistic structure of the private drug distribution network, the supposed greater bio-efficacy of branded drugs and differences in the patterns of demand, non-tariff barriers and the limited capacity of government to provide information on quality and prices to the general public.

¹ As enunciated in AO#56, s. 1989; AO#85, s. 2000; AO#69, s. 2001; DO #367-H, s. 2001; AO #70, s. 2002; and AO #70-A, s. 2002.

Domestic Retail Price of Rifampicin 450 mg/capsule 100's box

	Manufacturer	Price
Low Generic	Axon	440.00
Medium Generic	Pacific	480.00
High Generic	Alman	510.00
Low Branded	Koshmed by Vitalink	577.00
Medium Branded	Rexilan by Am-Europharma	1,233.54
High Branded	Fampisec by San Marino	1,999.70

Source of table: Solon and Banzon [1999].

Indeed, from a recent report (Philippine Business Profiles and Perspectives: 2002-2003), only a few drug distributors and retailers dominate the domestic drug industry. In 2001, the combined market share of Zuellig Pharma Corporation and United Laboratories Incorporated in the wholesale trade was 41 percent. In the same year, Mercury Drug controlled 87 percent of the retail trade gross revenues. Thus, the promotion of competition in the drug distribution industry and the strengthening of the regulatory capacity of BFAD would be necessary to bring down the prices of drugs to a more affordable level.

Global Drug Facility

Recently, the Philippines won a US\$1.5 million grant under the Global Drug Facility (GDF). Initiated by WHO in 2000, the GDF is “a global mechanism to ensure the uninterrupted access to quality TB drugs for DOTS implementation.” The grant constitutes globally procured, quality assured TB drugs to be released in three batches: the first batch of TB drugs for 5,000 cases is to be released in 2003; the second batch for 20,000 cases will come in 2004; and the third batch for 50,000 cases will come in 2005. Under the terms of the GDF grant, the drugs shall be provided for free to all TB DOTS patients and in support of the National TB Control Program.

It is likely that the domestic drug industry will resist the suggested use of the GDF procurement system by private practitioners or DOTS centers, in much the same way that they have complained about the adverse effects to them of the parallel drug importation policy. Although it is difficult to satisfy all drug suppliers and manufacturers with a single policy, it is nonetheless consistent with the objective of ensuring adequate TB drug supply to allow suppliers to participate in the PDI or use the GDF system, whenever possible. This should be open to all to ensure that no monopoly over cheap imported TB drugs will arise that will defeat the purpose of the new procurement system.

Other options on the matter of ensuring continuous TB drug supply are the following:

- Develop a facility for pooled procurement of TB drugs by private DOTS providers. They could be given access to the regular procurement program of the DOH or the Global Drug Facility.
- Issue clear guidelines regarding the appropriate drug regimen for various types of TB patients. Mandatory compliance with the fixed dose combination may be necessary to control the types of drug combination available in the market. This issue also concerns pharmaceutical companies, which have the capacity to influence the prescription practices of doctors. Close coordination with drug companies in the implementation of guidelines on the use of the SCC drug regimen may thus be necessary. The role of pharmaceuticals, however should not be limited to coordination. Most of the

fixed dose TB guidelines should also prescribe the appropriate fixed dose combination, with mandatory compliance enforced.

PHILHEALTH AND THE FINANCING GAP

Unlike previous TB policies, the PhilHealth TB benefit package represents an explicit financial incentive to adopt DOTS that may yet appeal to many private practitioners. Specifically, an accredited private DOTS provider or DOTS center is relatively assured of a captured market, i.e. PhilHealth members and beneficiaries with TB. In addition to the guaranteed caseload, the accredited provider is allowed some flexibility in allocating the P4,000-benefit amount among the various treatment components. Consequently, the provider can get a higher amount out of the P4,000 than the normal professional fee. Moreover, a provider is better assured of payment since it is made by PhilHealth rather than by the patient, who is likely to be indigent. More importantly, perhaps, PhilHealth accreditation, which is largely a market signal for quality DOTS services, may also serve as a badge of distinction among one's peers. The success of the new TB-OP insurance program critically depends on a number of factors, to be discussed below.

A critical factor would be the adequacy of the P4,000-support value for each TB patient who seeks treatment in private DOTS centers. This does not seem to be the case, as can be seen from Table 12 where a schedule of out-of-pocket payments by a Category 1 TB patient is presented. The estimates are based on a selective canvass of professional fees, laboratory fees and retail drug prices in Metro Manila. Although the prices in the seven initially-identified DOTS centers² are ideal, the estimates presented below are better indicators of the range of prevailing fees and charges in the private sector.

Expectedly, a Category 1 TB patient will shell out for a full-course treatment between a low-end estimate of P6,990 and a high-end estimate of P14,398. If a patient can and does avail of the new PHIC TB OP benefit package, then his or her direct out-of-pocket payments will be reduced to between P2,990 and P10,398. At least 50 percent of the cost of medication will be for drugs. Thus, the affordability of treatment in the private sector depends a lot on the availability of cheap TB drugs.

Table 12. Physicians' Awareness of Health Facilities that Provide Free Services and Drugs for TB Patients

	Percent of Medical Doctors who are aware of	
	A health facility that offers TB drugs for free	A microscopy center that offers free sputum smear exams
Mixed Practice	25 (100%)	17 (68.0%)
Pure Private	115 (92.7%)	75 (60.5%)
Total	140 (94.0%)	92 (61.9%)

Source of raw data: 2002 PhilCAT Survey of 188 MDs.

² The seven DOTS centers are Unilab, UST, Makati Medical Center, La Salle-Cavite, FriendlyCare Cubao, Pasig District Hospital, Manila Doctors Hospital.

A TB drug procurement facility for all private DOTS centers can be set up to pool their procurement orders and bargain for a lower price. Private DOTS centers should also be allowed to participate in the GDF procurement system.

The new PHIC TB OP benefit package is a welcome opportunity to enhance the participation of the private physician in TB DOTS. Potentially, the total financial package could reach up to P1 billion, calculated on the basis of the estimated 250,000 new TB cases annually (*Burden of Disease Study, PhilTIPS 2003*) and assuming, of course, that each of these cases is eligible to receive the TB OP benefit package.³ Arguably, this amount can be leveraged to elicit greater provision of TB DOTS services in the private sector, bring down the price of TB drugs, or facilitate other financial mechanisms that will help ensure the viability of private DOTS centers.⁴

To strengthen the features of the PhilHealth TB OP benefit package, guidelines and procedures must be set so that even smear-negative TB patients who are otherwise eligible can still avail of the TB OP benefit package. These should ensure that both smear-negative and smear-positive TB patients would have equal access to TB DOTS services.

³ Note that the PHIC is mandated to achieve universal coverage.

⁴ These insights were contributed by Prof. Emmanuel Leyco, Philippine TIPS Policy and Health Financing Advisor, to the study team.

OTHER POLICY DEVELOPMENT SUPPORT INITIATIVES

To flesh out some of the policy options outlined previously, the following additional research inputs are recommended:

- A comprehensive mapping and assessment of private sector capacity, treatment and pricing practices, and willingness to participate in TB DOTS. The relevant doctor's characteristics would include the location, practice setting, patient profile, fee schedule, expertise and training, and knowledge and awareness of TB DOTS.
- A comprehensive and updated National TB Prevalence Survey to include socio-economic variables and health financing information.
- A market study of TB services in a number of areas or settings. The market study will be a documentation of the nature of competition, cooperation or segmentation between public and private sectors. The study will likewise identify the relevant factors that could explain the observed interaction between public and private providers, and in the process suggest policy interventions that could promote collaborative arrangements between the two types of service providers.
- A mapping of PHIC membership in terms of health status (whether TB symptomatic), location, employment and education, income and demographic features, and HMO coverage. Such information will be useful in the calibration of the PHIC TB OP benefit package to maximize benefits to members and their dependents.
- A fully-developed TB accounts health matrix that can be used to identify financing burden and gaps to help formulate targeted financing policies.
- Technical assistance in crafting the Implementing Rules and Regulations (IRR) of the PhilHealth TB OP benefit package, especially in the specification of economic and financial standards that will ensure the viability and replicability of DOTS centers.
- Aside from providing technical assistance towards the rapid expansion of PhilHealth's TB DOTS program, an assessment must be conducted on the recovery of costs involved in the certification and monitoring of DOTS centers. The unit costs of monitoring the initial DOTS centers may not be reflective of the prospective costs incurred if a rapid expansion of PhilHealth's TB DOTS program is achieved, so a cost recovery mechanism has to be in place before the rapid expansion takes place.
- Technical assistance to the design of the models of public-private mix (PPM). At present, there are several private-public partnership models of TB DOTS provision. Not much, however is known about the networking between public and private physicians as well as among private physicians in the provision of TB treatment. The possibility of having different PPM appropriate in different areas gives added impetus to understanding the networking between physicians.
 - i. The first step in shedding light on the issue involves a mapping of physicians. Although this involves extensive fieldwork, this has to be done since it is also critical in drafting the implementing rules and regulations for the PhilHealth TB OP Package.

- ii. The second step involves an assessment of the referral system between physicians. This information may not be retrieved in the mapping of physicians and separate case studies may have to be undertaken in selected areas nationwide. These case studies will have to probe deeper into the different collaboration schemes feasible across physicians belonging to different practice settings and specializations. For example, would general practitioners be more comfortable with the role of gatekeepers referring patients to DOTS centers after diagnosis or would they prefer a more active role as consulting physician during treatment?
- iii. In addition to the evaluation of the networks between physicians, an evaluation must also be made on the nature of collaboration between the government (DOH) and TB DOTS centers/private physicians. Should the role of government be limited to advocacy and IEC? Can the government provide support infrastructure such as a TB drug procurement system that would reduce the cost of procuring TB drugs? At present the DOH plans to procure drugs for all TB patients. Although it is understandable that not all TB patients in the private sector can avail of these drugs, an examination of alternative drug distribution mechanisms may identify an effective TB drug distribution system that would ensure that TB DOTS centers receive an adequate and timely supply of TB drugs.

CONCLUSION

Most of the existing TB policies, at best, have only weakly encouraged the participation of private physicians in TB DOTS. Policies that explicitly promote TB DOTS are largely designed for and implemented in the public sector. On the other hand, other TB-related programs and regulatory policies that explicitly concern the private sector are not particular to DOTS. Moreover, existing regulatory policies do not ensure compliance with key elements of TB DOTS: quality TB sputum microscopy services, the uninterrupted supply of TB drugs, or appropriate recording and monitoring of TB patients in the private sector. Given the apparent neglect of the role of private physicians in the TB control program, it is not surprising that only a few private doctors follow the TB DOTS protocol in their treatment of TB patients, with no means of monitoring the quality or consistency of their course of treatment.

Still, the situation is not beyond saving.

The adoption of TB DOTS in the private sector is likely to increase and improve with the recent introduction of the PhilHealth Out-patient Benefit Package. Together with this new insurance package, the full implementation of the Comprehensive and Unified Policy for TB Control in the Philippines may yet institutionalize a wide and effective public-private partnership. Although these two initiatives are laudable, they alone are not the answer to the country's TB problem, which would also require amendments in the other TB policies.

One promising area of policy reform is accessibility to quality drugs, particularly drug pricing, since the required chemotherapy constitutes the biggest cost component of TB treatment. It has been found that the cost of treatment is a major factor influencing a person with TB's decision to seek or not to seek treatment for the disease. Concern over their patients' continued access to TB drugs is also a reason cited by doctors to explain their reluctance to adopt TB DOTS protocol. A review of drug pricing policies, as well as regulations on the manufacture, importation and distribution of drugs, is therefore necessary.

Although changes in the policy environment could draw in greater numbers of private physicians and institutions in the struggle to control TB, work also needs to be done on reshaping the social environment. TB is not just a deadly but curable disease. It is also a social disease, which if left undiagnosed or untreated hampers the individual's ability to earn a living, be productive, mingle freely among one's friends, workmates and neighbors. It thrives on ignorance, prejudice and shame. But it can be eradicated with the concerted efforts of medical personnel in the public and private sectors, as well as the openness and willingness of our national and community leaders to bring TB once more to the forefront of public attention and advocacy.

NOTES

Objectives, Evaluation Methodology, Policy Evaluation Framework

The primary objective of the study is to evaluate the implications of existing TB policies, programs and instruments on the decisions of private physicians to provide TB DOTS services.

To meet this primary objective, TB policies and other relevant policies crafted and implemented over the last 30 years are first inventoried. Following an evaluation framework, these policies are then classified and analyzed in terms of their likely impact on private sector participation in TB DOTS. Among the existing policies, a recent health financing initiative, the TB Outpatient Benefit package of the Philippine Health Insurance Corporation, is given a closer look given its relative importance in promoting TB DOTS in the private sector. Finally, policy options and issues for further exploration are identified.

Evaluation methodology

The methodology used in this study involved both quantitative and qualitative analyses of available survey data, review of relevant literature and public documents, interviews of key informants, and the conduct of focus group discussions. The overall study design and the proposed evaluation framework were first presented to the public during the Policy Roundtable Discussion held on March 19, 2003 (See Annex A for the list of participants during this consultation.)

To guide the policy inventory and analysis, an evaluation framework is proposed. The framework identifies the key players in the market for TB services, the relationships between and among these players, and the linkages between policies, the interactions of the players and health outcomes. Essentially market-based, the framework is used to organize the findings from the review of relevant literature and documents, from the analysis of secondary data, and the feedback from the interviews of key informants and from the participants in the focus group discussions. The secondary data sets used are described in the box below. The lists of key informants and participants in the FGDs are contained in Annex B and Annex C, respectively.

To obtain a reasonable perspective of the range and the relative impact of different TB policies on the decision of private physicians to participate in the TB DOTS program, secondary survey data (2001 UNHP, 2002 PhilCAT Survey of Physicians, 2001 PhilHealth claims database) and summary tables of survey data (1997 NTPS) were compiled. Despite the extensive breadth of these data sets, they were still of limited use since these surveys were not conducted specifically for evaluating the impact of TB policies on the private sector. To augment the collected secondary survey data, efforts were expended to collect first-hand data, though only of limited reach. Towards this end, the study team canvassed physician consultation fees, lab fees and drug prices (see Annex D). The limited canvass of fees and prices was employed to estimate the average cost of TB DOTS treatment for a Category 1 patient.

Brief Description of Data Sources

- *1997 National TB Prevalence Survey (NTPS)* – Nationally representative survey of individuals and households. Cluster sampling of 21,960 respondents. Contains data on prevalence rates, treatment seeking decisions, and limited set of demographic variables (age, gender). Limitation: no socio-economic variables. Used to calculate BOD, diagnosis and treatments seeking by facility.
- *1997 Philippine Health Statistics (PHS)* – Contains morbidity and mortality data. Limitation: Summary tables only

- *2001 Urban Health and Nutrition Program (UHNP) End of Project Evaluation Survey* – Survey of Households in UHNP and Non-UHNP covered areas, stratified sampling, 2205 respondents, limited to Metro Manila, Cebu City, and Cagayan de Oro City. Contains socio-economic variables, TB incidence, treatment seeking and limited cost data. Limitation: enriched sample, data accessible. Courtesy of Dr. Orville Solon. Used to estimate TB prevalence rates, TB treatment seeking by facility, and to calculate out-of-pocket TB treatment cost by facility.
- *2002 Philippine Coalition against Tuberculosis (PHILCAT) Survey of Physicians* – Survey of 188 medical doctors of various practice settings in Metro Manila and Cavite. Contains demographic characteristics of MDs, patient load, diagnostic, treatment and patient-monitoring practices, and awareness of health facilities for PTB and DOTS. Limitation: not representative and some ambiguous questions. Used in calculating the capacity of private doctors in case finding and in case holding of TB cases according to DOTS requirements.
- *2003 Policy Analysis of Private Sector Participation in TB DOTS Study Team Canvass of Professional Fees, Laboratory Fees and TB Drug Prices*– Canvass of physician consultation fees, smear and x-ray fees, and selected TB drug prices in Metro Manila.
- *2003 Policy Analysis of Private Sector Participation in TB DOTS Study Team Key Informant Interviews and modified Focus Group Discussions*– Interviews of experts in the field of TB services and health care financing. Group discussions with family physicians, specialists and financiers of TB treatment.

The information from survey data was further supplemented through interviews with key informants and modified focus group discussions. Valued for their expert opinions, the selected key informants are authorities in the medical profession and in the health-financing sector. Among the topics covered by the interviews were overall awareness and practice of TB DOTS by private providers, perceptions regarding the NTCP and other regulatory policies of the government, as well as incentives needed to stimulate the participation of private physicians in TB DOTS.

The pool of key physician informants was chosen after consultations with Dr. Rodrigo Romulo and Dr. Charles Yu, two well-respected specialists in infectious diseases and pulmonology. The pool of health care finance experts were chosen after consultations with highly respected researchers.

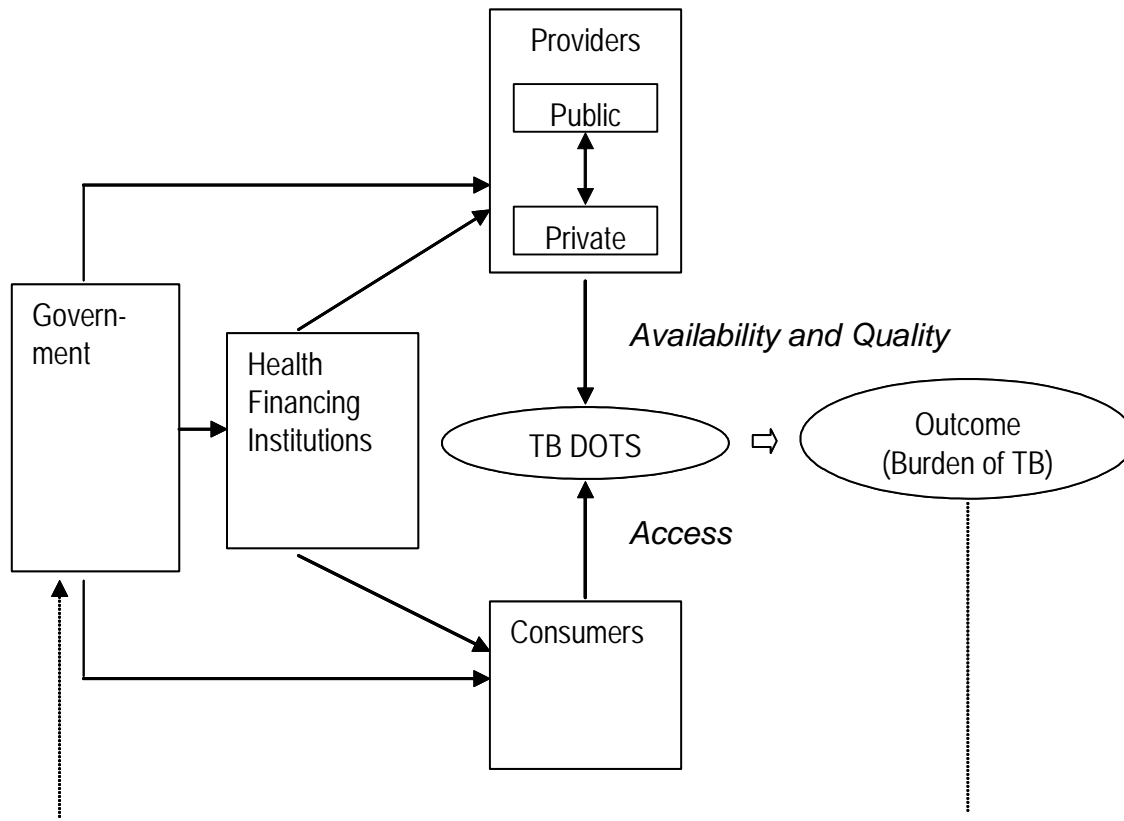
The findings from the secondary data and key informant interviews were validated through three focus group discussions. Focusing on health financing issues, the first FGD was conducted with representatives of PhilHealth, SSS and Fortune Medicare. The second FGD was conducted with family physicians, who are at the forefront of health service delivery and, therefore, often can influence a patient's choice of TB treatment regimen. The last FGD was conducted with chest physicians and specialists in the treatment of infectious diseases, experts who should be able to provide advice on how best to maintain DOTS standards in the private sector.

Given the resource and time limitations of the study, the findings reported in this policy analysis may not be free from bias. Therefore, the policy options suggested are best taken together as the general direction for subsequent government interventions to enhance the effective role of private physicians in TB control.

To trace the possible effects of policies, the following evaluation framework is proposed. In Figure 1, the major players in TB DOTS services are identified (in boxes), their interrelationships are traced (by arrows), and the linkages between policies, players' decisions and health outcomes are depicted (by

broken lines). The evaluation framework is essentially a market-based one since the market is the relevant setting for most physicians engaged in private practice. Though important, the physicians in the voluntary or non-profit sector constitute only a minority and their actions or decisions are also likely to be conditioned by market forces. Moreover, the market often provides useful benchmarks to assess the efficiency and equity of government interventions.

Figure 1. A TB Policy Evaluation Framework



The framework is also used to classify the existing TB policies and programs into those that essentially affect the provision (i.e. supply-side interventions) or the utilization (i.e., demand-side interventions) of TB DOTS services. Some policies though may not easily fit into either of these two categories; therefore, their classification will be arbitrary. Nonetheless, the simple scheme leads to two evaluation criteria, namely: the impact of supply-side interventions on the availability and quality of TB DOTS services provided in the private sector, and the impact of demand-side interventions on the consumers' access to TB DOTS in the private sector.

From another perspective, policies may also be evaluated in terms of their relevance to the different elements of TB DOTS strategy: political commitment, access to quality assured TB sputum microscopy, directly observed treatment using standardized short-course chemotherapy, uninterrupted supply of quality-assured drugs, and recording and reporting system.

Evaluation criteria

Once the policy inventory is accomplished, the different policies shall be evaluated in order to identify gaps, inconsistencies, or weaknesses that must be addressed to enhance the role of the private physicians in TB DOTS. Therefore, the policy evaluation will be carried out at two levels.

At the first level, the different policies will be assessed in terms of relevance to TB DOTS as a whole or to specific elements of the DOTS strategy. The clustering can facilitate the cross-referencing of particular provisions that may not be consistent with the objectives of the NTCP. Thus, once classified, the policies that need to be amended to achieve the desired objective may then be prioritized.

At the second level, the impact of policies on the behavior of the suppliers and consumers of TB DOTS shall be inferred from available data and from the results of the FGDs and key informant interviews. In particular, the supply-side interventions, on the one hand, will be assessed in terms of their impact on the availability and quality of TB DOTS services in the private sector. On the other hand, the effects on access to TB DOTS services in the private sector shall be the basis of the review of demand-side interventions.

Table 1. List of Existing Policies Concerning the Supply of TB Services

Policy (Implementing Agency)	Main Provisions/Features	Implications for private MDs' participation
Health Sector Reform Agenda (HSRA) (DOH)	<ul style="list-style-type: none"> - A comprehensive strategy to reform the public health sector, including key public health programs like TB control - Sets investment targets for TB control; sets target percentage of private doctors complying with the National Consensus on TB diagnosis and treatment 	- For information
DOH Administrative Order No. 37, series 2001 (DOH)	<ul style="list-style-type: none"> - <i>Guidelines on the Operationalization of the Health Sector Reform Agenda Implementation Plan by all Bureaus, Programs, Offices, Centers for Health Development and Attached Agencies of the Department of Health</i> - Delineates the roles of the different divisions and attached agencies of the DOH in the implementation of the five strategic reform initiatives in the health sector 	- For information
National Tuberculosis Control Program (NTCP) (DOH)	- The NTCP is the government's main anti-TB policy. The NTP officially adopted the DOTS strategy in 1996 (with the issuance of A.O. No. 24). The NTCP Manual of Procedures specifies guidelines and instructions for case finding and case holding for all government health workers involved in TB Control.	- For information
Executive Order No. 187, series of 2003 (Comprehensive and Unified Policy for Tuberculosis Control, CUPTC) (DOH, all NGAs, private sector orgs.)	<ul style="list-style-type: none"> - <i>Instituting a Comprehensive and Unified Policy for the Tuberculosis Control in the Philippines</i> - Mandates the collaboration among key national government agencies, health financing institutions, and private sector organizations: <ul style="list-style-type: none"> - To adopt DOTS as the basis of implementation of TB control in the country, and within each national government agency; and - To conduct the dissemination of, and the training on, the Comprehensive and Unified Policy for TB Control in the Philippines (CUPTCP) 	<ul style="list-style-type: none"> - For information - Enjoins the participation of PhilCAT, PMA and AHMOPHI in the IEC and training related to CUPTC

Table 1. List of Existing Policies Concerning the Supply of TB Services (continuation)

Policy (Implementing Agency)	Main Provisions/Features	Implications for private MDs' participation
TB Prevention and Control Program (TPCP) (DepEd- School Health and Nutrition Center)	<ul style="list-style-type: none"> - Program components consist of case finding, treatment, information education and communication, capability building, and monitoring and evaluation - Adopt DOTS protocol: use chest X-ray examinations and sputum microscopy in screening TB cases among all primary and secondary school teachers and non-teaching personnel; provide drugs to category I and category II TB patients; follow up and monitor treatment of TB positive cases. 	<ul style="list-style-type: none"> - For information - Occasional joint anti-TB activity with Cure TB foundation, PTSI and Glaxo Smithkline
Local Government Tuberculosis Control Strategy (DILG Memorandum Circular No. 98-155) (DILG)	<ul style="list-style-type: none"> - As specified in DILG Memorandum Circular No. 98-155 - Enjoins all LGUs to pass a resolution declaring TB Control as the No. 1 public health program for 1998-2004, to adopt DOTS, and to create an Anti-TB Task Force comprising public health personnel, representatives from local medical schools, civic organizations and private medical practitioners - Enjoins all LGUs to make every public health center or facility a DOTS unit, with the requisite trained manpower, microscopy services, anti-TB drugs, and reporting books to monitor progress of patients. - Identifies best local practices in TB Control 	<ul style="list-style-type: none"> - For information - Enjoins the participation of the private medical practitioners in local anti-TB programs
Support to the National TB Control Program (SNTCP) (NEDA)	<ul style="list-style-type: none"> - NEDA coordinates the formulation, evaluation and monitoring of socioeconomic policies and programs consistent with the national development objectives. Principally, the NEDA - Facilitates the inclusion of programs and projects in support of the NTP in the Medium-Term Public Investment Plan - Monitors the progress of implementation of ODA-Assisted TB control programs - Assists in the evaluation for tax deductions of private donations for TB control programs and projects 	<ul style="list-style-type: none"> - For information - Regulate private voluntary contributions to TB control programs and projects
Occupational Safety and Health Standards (OSHS) (DOLE)	<ul style="list-style-type: none"> - Promulgated under the <i>Labor Code of the Philippines</i> - Specifies the standards and procedures for the adoption of occupational safety and health services in all workplaces in the Philippines. Also, it mandates the company health programs for workers to include the provision of trained occupational safety and health personnel, the provision of first-aid kits and emergency medicines and facilities, periodic conduct of health examinations, immunization programs, and health education and counseling 	<ul style="list-style-type: none"> - For information - Possibly increase the demand for industrial physicians and for TB diagnostic/treatment services

Table 1. List of Existing Policies Concerning the Supply of TB Services (continuation)

Policy (Imp. Agency)	Main Provisions/Features	Implications for pvt. MD's participation
Republic Act No. 6675 (Generics Drug Act of 1988) (DOH)	<ul style="list-style-type: none"> - <i>An Act to Promote, Require, and Ensure the Production of an Adequate Supply, Distribution, Use and Acceptance of Drugs and Medicines Identified by their Generic Names</i> - Mandates the use of generic names in all transactions related to purchasing, prescribing, dispensing, and administering of drugs and medicines in the public and private sectors. - Also specifies the applicable penalties for violations 	<ul style="list-style-type: none"> - For information - Regulate drug prescription/dispensing
Republic Act No. 3720 (Food, Drugs and Cosmetic Act of 1963), (DOH)	<ul style="list-style-type: none"> - <i>An Act to Ensure the Safety and Purity of Foods, Drugs, and Cosmetics being made available to the Public by creating the Food and Drug Administration which shall administer and enforce the laws pertaining thereto</i> - Mandates the standardization and quality of food, drug and cosmetics, and the adoption of measures to insure pure and safe supply of food, drug and cosmetics in the country. - Establishes within the DOH the Food and Drug Administration, now the Bureau of Food and Drugs (BFAD) 	<ul style="list-style-type: none"> - For information - Regulate drug mfg
Republic Act No. 5921 (Pharmacy Law of 1969), (DOH)	<ul style="list-style-type: none"> - <i>An Act Regulating the Practice of Pharmacy and Settings Standards of Pharmaceutical Education in the Philippines and Other Purposes</i> - Mandates the standardization and regulation of pharmaceutical education, and the supervision, control and regulation of the practice of pharmacy in the Philippines 	<ul style="list-style-type: none"> - For information - Regulate drug mfg
R.A. No. 4226 (Hospital Act of 1965), (DOH)	<ul style="list-style-type: none"> - <i>An Act Requiring the Licensure of All Hospitals in the Philippines and Authorizing the Bureau of Medical Services to Serve as the Licensing Agency</i> - Establishes the regulatory policy for the construction and operation of hospital or clinic in the country 	<ul style="list-style-type: none"> - For information - Regulate practice setting
R.A. No. 9184 (Government Procurement Reform Act of 2002) (DBM)	<ul style="list-style-type: none"> - <i>An Act Providing for the Modernization, Standardization and Regulation of the Procurement Activities of the Government and Other Purposes</i> - Sets the guidelines for government's procurement activities, including procurement planning, bid solicitation, evaluation and award, implementation and termination of the bid contract, use of alternative methods of procurement, protest mechanisms, dispute resolutions and the imposition of civil liabilities and administrative sanctions. - Applies to the procurement of infrastructure project, goods and consulting services, regardless of source of funds (whether local or foreign), by all branches and instrumentalities of the government, its departments, offices and agencies, including GOCCs and LGUs. Supersedes/amends prior procurement policies (E.O. No. 40, s. 2001; E.O. No. 262, s. 2000) 	<ul style="list-style-type: none"> - For information - Regulate sale of goods and services to govt
Executive Order No. 49, series 1993 (DOH)	<ul style="list-style-type: none"> - Directing the Mandatory Use of the Philippine National Drug Formulary Volume 1 as the Basis for Procurement of Drug Products by the Government - Lists down essential drugs of proven safety, efficacy and quality at affordable cost. Limits government procurement to listed drugs and the basis for reimbursement of claims for drugs by members of PhilHealth. Included as vital drugs are TB drugs (isoniazid, rifampicin, pyrazinamide, ethambutol and streptomycin) 	<ul style="list-style-type: none"> - For information

Table 1. List of Existing Policies Concerning the Supply of TB Services (continuation)

Policy (Implementing Agency)	Main Provisions/Features	Implications for private MDs' participation
DOH Administrative Order No. 51, series 1988 (DOH)	- <i>Implementing Guidelines for Department of Health Compliance with R.A. No. 6675</i> - Sets the DOH's own implementing guidelines for the Generics Drug Act of 1988	- For information
DOH Administrative Order No. 55, series 1988 (DOH)	- <i>Req uirements for Labeling Materials of Pharmaceutical Products</i> - Sets the font type, size and color, and the positioning of generic name of a drug product as printed in the label	- For information
DOH Administrative Order No. 62, series 1989 (DOH)	- <i>Rules and Regulations to Implement Prescribing Req uirements under the Generics Drug Act of 1988</i> - Delineates the guidelines on the proper prescription of drugs pursuant to the Generics Drug Act of 1988	- For information - Regulate drug prescription
DOH Administrative Order No. 63, series 1989 (DOH)	- <i>Rules and Regulations to Implement Dispensing Req uirements under the Generics Drug Act of 1988</i> - Delineates the guidelines on proper dispensing of drugs pursuant to the Generics Drug Act of 1988	- For information - Regulate drug dispensing
DOH Administrative Order No. 65, series 1992 (DOH-BFAD)	- <i>Guidelines on Advertisement and Promotions to Implement the Generics Act of 1988</i> - Specifies the rules and regulations pertaining to the advertisement and promotions of pharmaceutical products	- For information
Bureau of Food and Drugs Circular No. 01, series 1997 (DOH-BFAD)	- <i>Enforcement of the Req uirements for Bioavailability Studies for Registration of Products included in the List B' under the DOH Administrative Order No. 67, series 1989</i> - Requires the conduct of bioavailability of certain drugs, including two TB drugs, namely: pyrazinamide (tablet) and rifampicin (capsule/tablet/syrup)	- For information
DOH Administrative Order No. 56, series 1989 (DOH-BFAD)	- <i>Revised Regulations for the Licensing of Drug Establishments and Outlets</i> - Specifies the requirements for obtaining license to operate any organization or companies involves in the manufacture, importation, repacking, distribution and/or sale of drugs or medicines	- For information

Table 1. List of Existing Policies Concerning the Supply of TB Services (continuation)

Policy (Implementing Agency)	Main Provisions/Features	Implications for private MDs' participation
DOH Administrative Order No. 85, series 2000 (DOH-OSR)	<ul style="list-style-type: none"> - <i>Registration Requirements for a Government Agency Importing a Pharmaceutical Product with a Registered Counterpart Brand in the Philippines</i> - Sets down the licensing rules and procedures for government agencies that want to import drugs that similar but cheaper than locally available branded products. 	- For information
DOH Administrative Order No. 69, series 2001 (DOH-BFAD)	<ul style="list-style-type: none"> - <i>Guidelines and Procedures in the Utilization of Funds for Drug Importation and Distribution for the Pharma 50 Project</i> - Specifies the guidelines and procedures in the use of funds for imported drugs to lower the price of selected by 50 percent. 	- For information
DOH Department Order No. 367-H, series 2001 (DOH-BFAD)	<ul style="list-style-type: none"> - <i>Creation of Pharma 50 Project Management Unit</i> - Creates a unit within the BFAD to administer and supervise the DOH's Pharma 50 Project (i.e., the project intended to lower the price of selected drugs by 50 percent through parallel drug importation). 	- For information
DOH Administrative Order No. 70, series 2002 (DOH-BFAD)	<ul style="list-style-type: none"> - <i>Licensing of Botikang Barangay in various Local Government Units</i> - With the goal of ensuring wide access low priced, good quality medicine, this A.O. sets the guidelines for the licensing of barangay-level pharmacies run by local government units, non-government organizations or community organizations 	- For information
DOH Administrative Order No. 70-A, series 2002 (DOH-OHR-BHFS)	<ul style="list-style-type: none"> - <i>Revised Rules and Regulations Governing the Registration, Licensure and Operation of Hospitals and other Health Facilities in the Philippines</i> - Mandated under Hospital Licensure Act (R.A. 4226) - Specifies the procedures for securing and renewing license to operate hospitals or health facilities both in the public and private sectors. - Specifies the licensing requirements such as service capability, personnel, equipment and instrument, and physical plant for first-level, second-level and third-level referral hospitals and other health facilities 	- For information

Table 2. List of Existing Policies Concerning the Demand for TB Services

Policy (Implementing Agency)	Main Provisions/Features	Implications for private MDs participation
PhilHealth In-Patient Benefit Package (PHIC)	<ul style="list-style-type: none"> - Promulgated under the National Health Insurance Act of 1995 (R.A. 7875) - Aims to provide a basic health insurance coverage for all Filipinos, indigents or otherwise. - As of Dec. 2002, the basic insurance covers only in-patient care services 	<ul style="list-style-type: none"> - For information - May increase demand for TB DOTS services
PhilHealth TB Out-Patient Benefit Package (PHIC)	<ul style="list-style-type: none"> - This an expansion of the basic health insurance coverage provided by PhilHealth. It includes an out-patient benefit package to eligible members with TB. - To be implemented in May 2003 	<ul style="list-style-type: none"> - For information - May increase demand for TB DOTS services
Disability and Sickness-Income Benefits for Government Workers (GSIS)	<ul style="list-style-type: none"> - Promulgated under the GSIS Act of 1997 (RA 8291) - Provides for increased and expanded social security protection of all government workers. The social security benefits include: <ul style="list-style-type: none"> - Disability benefits (which are granted to a member due to the loss or reduction in earning capacity caused by a loss or impairment of the of the normal functions of the member's physical or mental faculties as a result of an injury or disease); and - Optional pre-need coverage (for hospitalization products). - The Act specifies the requirements and procedures for enrollment, payment of premiums, and eligibility for benefit claims 	<ul style="list-style-type: none"> - For information - May increase demand for TB DOTS services
Disability and Sickness-Income Benefits for Workers in the Private Sector (SSS)	<ul style="list-style-type: none"> - Promulgated under the SSS Act of 1997 (RA 8282) - Provides for increased and expanded social security protection of workers in the private sector, including: <ul style="list-style-type: none"> - Disability benefits (which are granted to a member due to the loss or reduction in earning capacity caused by a loss or impairment of the of the normal functions of the member's physical or mental faculties as a result of an injury or disease); and - Optional pre-need coverage (for hospitalization products). - The Act specifies the requirements and procedures for enrollment, payment of premiums, and eligibility for benefit claims 	<ul style="list-style-type: none"> - For information - May increase demand for TB DOTS services
Employees' Compensation Program (SSS-ECC)	<ul style="list-style-type: none"> - Promulgated under P.D. No. 626, and amended later; administered by SSS - Provides a list of ailments which are deemed work-connected, such as pulmonary tuberculosis. - Specifies the procedures and requirements for claiming employee's compensation benefits by members with work-connected disabilities - The employees' compensation benefits are in addition to whatever the members may claim under the GSIS or SSS Disability Benefits schemes. 	<ul style="list-style-type: none"> - For information - May increase demand for TB DOTS services

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